AN EDUCATOR'S GUIDE TO SELF-REGULATION IN THE EARLY ELEMENTARY YEARS

by

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Abstract

Over the last number of years there appears to have been a shift in how children are able to focus their attention and complete academic tasks. Educators are often asking how they can better support their students in developing their ability to remain on task and be present physically, emotionally, and mentally during the school day. This project has been created to support educators in their journey of finding ways to develop individual student's ability to self-regulate. The project focuses on providing information on what self-regulation is, why it is important to address self-regulation, how it develops, and what evidence-based interventions are available for educators to use. Through focus groups and content analysis, a handbook for educators has been created to encourage them on their journey in supporting their students with the development of self-regulation.

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Acknowledgements

This project has been a labor of love over the past two years. This topic however has been an area of interest of mine for the last 12 years or so. I have had countless conversations with colleagues, parents, and students about what tools children need in order to be successful in school. The students that I have spent most of my time with have often needed a "little" extra guidance when it comes to remaining focused and on task. It is truly amazing to see a student who has been struggling grow and learn how to help themselves through a variety of interventions that can be supported by the team that is working with them. This is why I teach. I want to see each student find their individual strengths and support them in their journey. I wish to acknowledge all of the students, their families, and my colleagues for the way they have influenced my learning over my career.

This project is dedicated to all of the students and families that I have worked with that gave me the drive to seek further clarification and information on how to best support their family and their child. As well, to my fellow colleagues for whom I have immense respect and want to find a way to support them in each of their journeys as educators.

I want to specially acknowledge my family who believed in me and supported me throughout this entire process. My husband Kevin, my children Alena and Isabelle, and my parents Gary and Val Beyette have been instrumental in supporting me in the completion of this project.

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Chapter 1: Introduction

In the late 1960s Walter Mischel began an experiment that would forever have society considering the relationship between success in life, self-control, and self-regulation. School success, marital status, profession, and overall happiness measured the lifetime success (Mischel & Ebbesen, 1970). Mischel had four-year-old children attempt to inhibit the impulse to eat a marshmallow that was presented to them in order to receive an increased reward. As measured by the study, children who were able to refrain from eating the marshmallow in the allotted time demonstrated increased success in life. The study was not intended to be longitudinal but the success and results were intriguing and warranted the continuation of the study. Children who ate the marshmallow immediately struggled in general life more than those who either waited longer to eat the marshmallow or those who were able to wait to get the additional promised reward.

This study was the first of its kind to place a significant value on self-control and self-regulation as a primary means for lifetime success as opposed to intelligence or IQ scores (Mischel, Shoda, & Rodriguez, 1989). Between the initial study conducted by Mischel and Ebbesen and the follow-up information by Mischel, Shoda, and Rodriguez (1989), it has taken the field of education over 20 years to consider this study as a way to improve success in students. Now that we know that children become more successful adults when they are able to delay gratification by using self-control, can we teach this? The answer is an obvious yes!

Rimm-Kaufman, Pianta, and Cox (2000) completed a national study in the United States that examined the difficulties children were experiencing upon entry into kindergarten. The study indicated that slightly over half of the children entering kindergarten were able to do so successfully. This statistic means that less than half of children entering kindergarten experienced difficulties that were of concern to their classroom teachers. In my opinion, this finding should alarm the education community and encourage us to think beyond the typical academic interventions. The areas with which students struggled most frequently, as identified by their teachers in the study, included: following directions, lack of academic skills, difficulty working independently, difficulty working as part of a group, problems with social skills, immaturity, and difficulty communicating. These skills are recognized as being crucial indicators of a student's future school success (Rimm-Kaufman et al., 2000).

Duckworth and Seligman (2005) examined self-discipline as a means of predicting school success as opposed to the more conventional use of IQ testing. The study resulted in the authors suggesting that self-discipline was a better predictor of school success than IQ. The study concluded that students who were self-disciplined outperformed peers in all academic areas from report card grades to admittance into competitive high schools. Diamond and Lee (2011) suggested that creativity, flexibility, self-control, and self-discipline would be four qualities that children would need to be successful in society as our future leaders. Blair and Diamond (2008) indicated "the capacity for self-regulated learning, socio-emotional skills that foster the relationship, and executive function skills that promote self-regulation are quite literally foundational for

learning" (p. 909). Many of the deficits which the students demonstrated in the Rimm-Kaufman, Pianta, and Cox (2000) study are defined as deficits in self-regulation. Self-regulation is defined as "the ability to flexibly activate, monitor, inhibit, persevere and/or adapt one's behaviour, attention, emotions, and cognitive strategies in response to direction from internal cues, environmental stimuli, and feedback from others, in attempt to attain personally relevant goals" (Moilanen, 2007, p. 835). Some researchers have concluded that school success is a direct result of a child's ability to remain at optimal regulation levels throughout the school day (Blair & Diamond, 2008; Blair & Razza, 2007; Duckworth & Seligman, 2005; McClelland & Cameron, 2011; Shanker, 2013). Considering that close to half of children entering kindergarten do not demonstrate that they are ready to learn (Rimm-Kaufman et al., 2000), it is important for educators to consider the explicit teaching of self-regulation skills that may be essential for children to be competent with prior to, or in concert with, developing academic proficiencies.

Significance of the Project

Researchers who have spent time trying to discover what skills students require in order to be successful in the classroom and the world around them indicate that there needs to be focused attention directed at a child's ability to self-regulate (Blair & Diamond, 2008; Blair & Razza, 2007; Duckworth & Seligman, 2005; McClelland & Cameron, 2011; Shanker, 2013). Self-regulation is developmental; therefore, children will progress at varied rates based on experiences and brain maturity (Kopp, 1982). Keeping in mind the developmental progression of self-regulation skills, educators need to be responsive to both the children experiencing deficits in self-regulation and to

children struggling with academics. Some scholars would say that, if the development of self-regulation is being addressed, academic concerns would be significantly lessened and, therefore, the need for interventions for academic subjects would be reduced (Blair & Razza, 2007; Duckworth & Seligman, 2005; Shanker, 2013). Although there is ample information for educators on remediation for reading, writing, and mathematics, there is significantly less information and program interventions that have been empirically tested to assist children with self-regulatory deficiencies. Several scholars have researched the relationship between school or academic success and its connection to self-regulation; however, there appears to be a disconnect between educators and the scholarly evidence presented in research journals and other printed materials (Blair & Diamond, 2008; Blair & Razza, 2007; Duckworth & Seligman, 2005; McClelland & Cameron, 2011; Shanker, 2013). Educators are often very focused on delivering academic curriculum and are often not focusing on the development of the whole child.

Background to the Project

There are very few self-regulation handbooks. One existing handbook on self-regulation focuses on the trends in self-regulation research and is directed to psychologists and scholars as a primary audience (Baumeister & Vohs, 2011). Another, handbook gives an overview of the psychological research on self-regulation including, but not limited to, the definition of self-regulation, how to attain self-regulation, and behavioural self-regulation (Boekaerts, Pintrich, & Zeidner, 2005). Although their handbook may be of greater interest and more applicable to educators, it may not give elementary educators the specific information they seek.

Hall and Goetz (2013) created a handbook for teachers to assist in increasing their understanding of self-regulation for themselves and their students. They included the theoretical and empirical research on self-regulation as well as the effects self-regulation has on personal and academic development. Although this handbook is intended for teachers, it fails to provide specific intervention programs teachers need to know about in order to implement class-wide self-regulation programming. It appears that there is a gap in the research on self-regulation as it pertains to specific evidence-based intervention programs in combination with occupational therapist strategies for children in the early elementary years. Since this gap appears to exist, one could speculate that by providing teachers with a succinct tool to actualize class-wide self-regulation intervention programs, coupled with specific occupational therapy strategies for classroom use, student learning would improve through the lens of self-regulation.

By creating a guide for educators that explains what self-regulation is, what it looks like in the classroom, evidence-based interventions, and occupational therapy strategies in the school division with which I am employed, I would be able to support my colleagues in identifying students requiring support with self-regulation deficits more readily and give them a "bag of tricks" that can be used in their classrooms. In turn, students would be supported in their development of self-regulation and academic achievement would grow. Considering that at the turn of the 21st century nearly half of all kindergarten children were expressing difficulties with skills associated with self-regulation it is essential to put self-regulation at the forefront of student learning: reading, writing, arithmetic, and self-regulation (Rimm-Kaufman et al., 2000).

Personal Location

Throughout my teaching career, I have worked primarily with students who exhibit significant behavioural concerns. Many of these students have displayed lagging skills in their ability to focus attention, follow directions, set goals, maintain motivation, manage time, and understand cause and effect. Upon working more intently with other professionals such as educational psychologists, occupational therapists, and speech and language pathologists, I have begun to identify that many children who struggle with behaviour could, in fact, be struggling with the development of their self-regulation and possibly deficits in their executive function. Executive function refers to flexibility in attention, working memory, and inhibition as it pertains to planning, problem solving, and goal-setting (Miyake, Friedman, Emerson, Witzki, Howerter, and Wager, 2000). Understanding how executive function works with the cognitive processes has been essential in developing my understanding of self-regulation and the impact it has on learning and achievement. Essentially, the maladaptive behaviour students exhibit are the symptoms of poor self-regulatory skills. My goal is to assist fellow educators in developing a concrete understanding of what self-regulation is and how they can support students in developing self-regulation in hopes of creating a more settled learning environment for all children.

Purpose of the Project

The purpose of this project was to give elementary educators the current research behind what self-regulation is and the support students require in developing their self-regulation skills, including evidence-based programming/interventions for children who

struggle with self-regulation. It has taken into account the current research on the benefits of utilizing strategies to promote self-regulation as well as focus on the role occupational therapists have in supporting students with regulatory deficiencies, including how they are able to assist students and teachers by providing viable researched-based approaches. The fundamental goal of the guide was to provide elementary school educators with an easy-to-use handbook of information on what self-regulation is, the importance of addressing it in the classroom, and strategies and program interventions that could support the students in their classrooms with self-regulation needs and, ultimately, increase academic learning and performance for all students.

Overview of the Project

Research has determined that self-regulation is an important area to consider in supporting student academic and personal growth. Focusing on self-regulation as a way to improve student learning has been confirmed by research as a way to move students faster and further with their academic goals. In this project, the literature will be examined to determine what information is available for educators. This literature will support the qualitative content analysis that will be driven by the focus groups of educators and occupational therapists. Chapter 3 will examine the research methods of the project while Chapter 4 will provide the results of the data collected from the content analysis and the focus groups. Chapter 5 will contain the actual handbook, and Chapter 6 will summarize the project and connect it back to the research.

Chapter 2: Literature Review

Upon completing multiple online searches of databases, there is a noticeable upsurge of research on self-regulation and its impact on the everyday lives of children over the last 20 years, which has been completed primarily in the disciplines of neurology and psychology. In the field of neurology, researchers have examined brain development, more specifically, the development of executive function in the pre-frontal cortex. In the area of psychology, self-regulation is examined through multiple disciplines including cognitive psychology, personality psychology, and educational psychology. These disciplines have explored executive function, temperament, effortful control, and engagement. By looking at these various areas we can begin to draw conclusions and connections between the disciplines and the relationship they have with self-regulation (McClelland & Cameron, 2011).

In order to begin the process of examining the literature on self-regulation, the University of Northern British Columbia's library index database was used. The area of education was chosen and then the specific databases of ERIC, Psych Info, and Academic Premier were selected. Within those databases, keywords were chosen to search for the topic. The keywords that gave suitable resources included: "developmental stages of self-regulation", "self-regulation and development", "self-regulation", "self-regulation programming", "self-regulation interventions", "self-regulation in education", "executive function and self-regulation", "self-regulation and academic achievement", "self-regulation and social learning", "self-regulation and occupational therapy", and "self-regulated learning". Once a number of resources were located, keywords from within the

journal articles were used to look further into the topic. Along with using the University of Northern British Columbia's library index database, there were Internet searches via Google Scholar to track down additional pertinent sources that were available in full-text PDF versions. The same keywords were utilized in the Internet search.

For the purpose of this guide, the reviewed research has focused on the discipline of psychology and the advances made to support the growth and development of self-regulation in children. The psychological areas examined in the research review included: how self-regulation develops, self-regulation as it pertains to academic achievement, self-regulated learning, evidence-based interventions, and its relationship to the work of occupational therapists including recommended strategies and interventions.

The Development of Self-Regulation

Kopp (1982), in a landmark study, examined a developmental perspective of self-regulation. She looked at how an infant to preschooler developed the ability to self-regulate his or her behaviour in order to navigate the world he or she was exploring and growing in. According to the research, four phases of development occur in order to achieve the fifth phase of self-regulation. The first phase, *neurophysiological modulation*, occurs from birth to three months, activates organized patterns of behaviour such as routines in feeding and sleeping. Phase two, *sensorimotor modulation*, occurs from three to nine months. During this phase, infants gain the ability to understand that their actions, such as reaching or playing, are different from others. The third phase, which typically develops between nine and 18 months, is *control* and it identifies the initiation of a child's ability to be aware of social tasks; they can begin and stop

communication or physical tasks and can begin to monitor their behaviour. This phase requires cognitive support unlike the initial two phases, which are more based on instinct and experience. The fourth phase, *self-control*, occurs with toddlers beyond 24 months. During the self-control phase, toddlers are developing the ability to monitor their own behaviour with and without external influences. They are beginning to recall information that helps support decision-making. In the final phase, *self-regulation*, which begins to develop at 36 months and beyond, preschoolers continue to work on all of the others skills but also begin to develop the ability to flexibly control the demands of changing situations. Kopp (1982) used the works of developmental theorists such as Vygotsky, Luria, and Piaget to support the phases of development.

Posner and Rothbart (2000) discussed the development of self-regulation and how it worked with attention and temperament. Based on their research, the authors believed that self-regulation may be one of the most important areas to study as it can determine the success of an individual. By examining how self-regulation develops and the effects the social world has on our development, the researchers stated that they may be able to have a better understanding of how to diagnose and prevent developmental concerns such as ADHD and learning disabilities. The paper addressed three areas that are associated with self-regulation and explicitly discussed how each develops under the lens of self-regulation. The three areas are plasticity, executive control, and individuality. In each of these areas the authors explored how self-regulation helps to determine success in the development of these areas. The authors concluded by indicating that training,

medication, and adjustments to a child's social environment could support the enhancement of self-regulation.

Kochanska, Coy, and Murray (2001) completed a longitudinal study of 108 children on the development of self-regulation in the first four years of life. They studied the children's ability to comply with a caregiver's request by initiating a task or stopping a task. Children were assessed at 14, 22, 33, and 45 months of age. In all cases the request to complete a task was easier for children than the request to stop a desirable task. In all situations, girls out-performed boys during the assessments which has clear implications for additional research regarding why there is gender differences and how interventions could support individuals. Researchers also observed how the children were able to respond to situations of "do" and "don't" without a caregiver present. This research is the start of examining how children respond to people other than their caregivers. This research was based on the work of Kopp (1982) and confirms the developmental phases that were indicated in her research.

Lerner et al. (2011) observed the developmental link across the lifespan of self-regulation, with a specific focus on early childhood and adolescence. The authors stated that in order for people to succeed, the self-regulation processes must be intact, which will allow the developmental trajectory to move forward in a positive direction. At this point there has not been a developmental approach to self-regulation across the lifespan as a theory. Overall, there is a ringing theme to the article that self-regulation is a basic function that allows people to be successful. Providing direct intervention that supports

improved executive functions as it relates to self-regulation could prevent the delays some children have based on specific risk factors that inhibit academic achievement.

Reuda, Posner, and Rothbart (2005) examined how executive attention contributes to the emergence of self-regulation. Infants up to one year depend on support to orient their attention while toddlers beyond a year begin to demonstrate more controlled attention. A child's temperament plays a large role in supporting the development of self-regulation. Effortful control allows a person to determine the current and future needs. Children that demonstrate high effortful control are able to exhibit higher levels of empathy and low levels of aggression. There is also a strong developmental correlation between executive attention and self-control skills in relation to the developmental trajectory of self-regulation. As children are able to control their own behaviour with less influence from external supports they are better able to resolve conflict. The research indicatesd that the training of attention could increase cognitive abilities and emotional regulation, which can support a child's behaviour.

Posner and Rothbart (1998) examine how the brain develops consciousness. They used neuroimaging studies that indicate that the anterior cingulate is involved in developing both consciousness and executive attention. However, they seem to develop in different areas of the anterior cingulate. Consciousness refers to a person's feelings of themselves and the understanding of the world and continuing self. The first to develop seems to be executive attention to help infants to be able to calm themselves. Later to develop is cognitive control, which supports the ability to self-regulate as it supports the

development of how we control our emotions. Overall, this study supports the understanding of how the brain physically develops to support self-regulation.

McClelland, Cameron, Wanless, and Murray (2007) took a comprehensive look at the development of self-regulation through the lens of the relational-developmental-systems. By examining self-regulation through this lens the researchers stated, "all development represents a bidirectional and dynamic process of person-context relationships and these relationships are mutually regulating" (p.2). The article, which is part of a larger work on psychology and development, dove into this area extensively, dealing with such topics as definitions of self-regulation; important associates of self-regulations, such as achievement, stress, intelligence, cognitive development; and future directions for research.

When considering the definition of self-regulation, one needs to recognize which lens you are viewing it with. Seven facets of psychology have a perspective on what self-regulation can be defined as. In each area of psychology there is a twist as to what is believed to be the most important area of self-regulation. For example, neuropsychology considers executive function, developmental psychology looks at the delay of gratification and behavioural self-regulation, personality psychology focuses on temperament, and educational psychology is concerned with engagement. Clinical, cognitive, and life span psychology center on other areas as well. Due to the multiple areas of psychology that self-regulation is being researched through, it is important to consider what it is you as the reader is looking for to be able to gain the best understanding of self-regulation in the field that you are concerned with.

The Impact of Self-Regulation on Academic Achievement

Rimm-Kaufman et al. (2000) uncovered groundbreaking research in examining self-regulation as it relates to positive transitions into kindergarten. The primary information they wished to investigate included: prevalence and types of kindergarten transition problems, perceptions of the prevalence and types of problems as they relate to poverty, and the reported problems and how they are associated with a teacher's minority status. The American national study surveyed teachers on these primary topics. The research resulted in the discovery that 48% of children struggled with their entry into kindergarten. The study also unfolded new information on the increased struggle rural students have with skills associated with school readiness. As well, teachers of minority descent typically rated children as having better readiness skills than their ethnic majority population teachers. Overall, the study demonstrated the need for self-regulation programming to better assist children in their transition into kindergarten. As by the definition of self-regulation many of the skills identified in the study are skills that the researchers identified as lagging through the study.

Duckworth and Seligman (2005) completed a longitudinal study on whether self-discipline is a better predictor of academic performance than IQ in adolescents. These authors had three hypotheses when beginning this study. The three hypotheses addressed whether self-discipline in the fall will predict academic performance the following spring, whether self-discipline measured in the fall will account for a more significant variance in academic-performance outcomes than the IQ measured in the fall, and the final

hypothesis predicted whether self-discipline measured in the fall will predict final grades in the spring.

The authors completed a two-part study involving eighth-grade students to test the three hypotheses. The initial study was completed in the fall and the second part was completed in the spring using two consecutive cohorts of eighth-grade students. The authors gave a detailed description of the participants within the study and the measures used. Considering the design of the study was a multi-method, multi-source approach, there were ample appropriate measures used to complete the study. The researchers were able to retrieve valuable information from students, parents, and teachers.

The results of the study indicated that the measures were reliable and valid. In the authors' discussion they confirmed that self-discipline was a better predictor of academic performance. Not only did self-discipline predict grades, but it could also determine which students were more likely to improve their grades over the school year. The results of the second study seemed to indicate that self-discipline is able to predict academic performance than IQ. There appear to be three limitations to this study, including: arguments that self-discipline in this study was measured with greater reliability than IQ, there was a constraint array for IQ, but not self-discipline, and the last limitation could be whether the reader of the study puts more value in standardized tests than report card grades. Overall, Duckworth and Seligman (2005) were able to demonstrate that self-discipline can predict student's academic growth and school success.

McClelland and Cameron (2011) presented information through examining the current research on self-regulation and academic achievement in elementary-school

children. They compiled valid information on the theoretical context of self-regulation, definitions of self-regulation, the importance of self-regulation for school success, social competence and engagement, risk factors to poor self-regulation, methodological challenges, and measuring self-regulation. McClelland and Cameron (2011) established that with the current research available conclusions could be made that understanding self-regulation is essential in supporting students in their path to academic success. With new measures available to assess self-regulation skills in children, clinicians and teachers may be able to establish and recommend more effective intervention strategies to support self-regulation growth.

In 2012, McClelland and Cameron continued their research on how self-regulation impacts learning. When a child's ability to maintain and direct attention to learning tasks is compromised, self-regulation deficits need to be considered and assessed. They concluded in their paper that, although there are few applicable measures to assess self-regulation, there are measures that are available that will assess key components of self-regulation which include: working memory, inhibitory control, and attentional flexibility. McClelland and Cameron (2012) added that, in order for an assessment to be most ecologically valid, the assessment needs to be conducted within the child's natural environment. The authors reiterated the importance of determining the essential skills for academic success, along with appropriate measures, and stated that more research needs to be conducted in this area to assist in creating appropriate programming for students who exhibit signs of self-regulation difficulties.

Blair and Razza (2007) produced a study with the purpose of the relationship of executive function, effortful control, and false belief understanding. The children involved in the study came from low socio-economic status backgrounds from a specific early learning program called Head Start that serviced children in both rural and urban settings with the majority of families being of Caucasian descent. The researchers used a variety of measures to establish the results of their study. The results of the study indicated that the executive function of inhibitory control related to all academic measures, and the effortful control and false belief understanding measures used accounted for significant variation in both mathematics and letter knowledge. This being said, the authors indicated there were limitations to their work, which include interpretation, the absence of the full-regression model, and participant fatigue. Although self-regulation appears to be an indicator of school readiness in preschool and kindergarten, the authors indicated that the results of this study couldn't establish a conclusive connection between self-regulation and academic ability. The authors recommended that it would be pertinent to continue the research in this area as promoting self-regulation in the early years would help to minimize the gap in children's early educational experiences.

With the increase in pre-kindergarten expulsion and prescription medication for young children, Blair and Diamond (2008) felt it essential to examine the role that the development of self-regulation has in assisting children in the academic and social contexts of school. In examining self-regulation as a key to social and academic growth they proposed that with increased knowledge of the science behind self-regulation there

might be a decrease in school failure. Overall, Blair and Diamond (2008) came to the conclusion through researching other studies that, if a child has good executive function, their self-regulation skills would present more positively and therefore their start to school would be better. Blair and Diamond (2008) stated that self-regulation programming should be essential in all early learning programs to ensure that children develop the skills necessary for academic learning.

Matthews, Ponitz , and Morrison (2009) examined the differences between genders with regard to self-regulation and academic achievement. The study looked at the academic achievement and self-regulation of boys and girls in kindergarten. Overall, the gap in self-regulation skills between boys and girls was extreme, although there was little to no gap between their academic scores at the end of the school year. There were a number of questions that came out of this study considering the lack of achievement differences between the genders at the conclusion of the school year regardless of the significant self-regulation differences between the genders, the most notable being that although the achievement gap did not exist at the end of kindergarten, what would it look like for those boys in the later elementary grades that struggle with self-regulation? The authors referenced other studies that did examine the struggles of boys in both self-regulation and academics. Overall, it was stated that with improved self-regulation students should reap academic rewards in later school years.

Ponitz and McClelland (2009) completed a study that examined behavioural regulation in kindergarten children. They used an assessment tool called the "Head-Toes-Knees-Shoulders" (HTKS) to assess each child in the study on behavioural

regulation. They used the term behavioural self-regulation synonymously with self-regulation. The study differentiated between the need for behavioural regulation to assist in academic success versus the need for developed emotional regulation for interpersonal success. Overall, the results of the HTKS assessment demonstrated that it is a valid measure in assessing behavioural regulation as it demonstrated that children with higher levels of regulation in the fall had increased academic success. The gains for these children were larger in mathematics than in literacy, which was not expected. These preliminary findings support teachers in providing direct instruction on the skills required for behavioural regulation, which will improve academic success.

Liew (2011) argued that self-regulation is often researched through two different avenues. Researchers often look at self-regulation from the cognitive and behavioural perspectives separately. The behavioural approach often examines self-regulation through effortful control whereas the cognitive framework comes through the angle of executive function. Liew (2011) argued that the research does not need to remain separate; rather, they are complementary. Regardless, the researcher indicated that the development of self-regulatory skills is essential for school readiness. The author discussed the need for evidence-based educational programming to enhance the development self-regulation skills.

Denham, Bassett, Zinsser, and Wyatt (2014) examined how preschool children's socio-emotional learning predicts school success in the early years. Self-regulation is listed as one area that can help to promote positive socio-emotional learning. Socio-emotional learning tasks refer to engaging in the physical and social environment,

managing emotions and cognitive demands, as well as developing and maintaining appropriate social relationships with adults and peers. These skills can be used to measure success. According to these authors, self-regulation falls under the umbrella of skills needed to demonstrate positive socio-emotional learning. Students who struggle with emotion, attention, and behaviour have been found to struggle with academic readiness and it will often predict their success or failure. The article suggested that, after completing observations and standardized assessments of 101 preschool children, it is possible to determine strengths and needs of students so programming can be created to increase early school success.

Sawyer et al. (2014) completed a longitudinal study that included 3410 Australian children to determine how self-regulation, specifically the areas of task attentiveness and emotional regulation, play a role in the early academic years. Children were assessed at two-to-three, four-to-five and six-to-seven years of age. Their findings suggested that there is a greater correlation with task attentiveness and literacy performance than the relationship between emotional regulation and literacy performance. Therefore, children who were better able to attend to tasks at age two or three demonstrated greater performance in their literacy skills once they were school age. The researchers speculated that specific instruction on task attentiveness could support the development of literacy skills and overall academic achievement.

McClelland, Acock, and Morrison (2006) studied the learning skills, which they considered to be self-regulation and social competence, in a group of 538 children in kindergarten to Grade Six and how these skills relate to their academic success in math

and literacy. Overall, findings indicated that children who had poor learning skills in kindergarten (after controlling for background, ethnicity, IQ, and maternal education) demonstrated poorer math and reading achievement in the sixth grade. As well, teacher ratings in kindergarten were an accurate predictor of math and reading in the sixth grade. This finding validates the need for an assessment tool that would indicate students' areas for growth in their learning skills. The research also suggested the need for self-regulation and social competence as areas requiring measurement in school readiness assessments. The study also implied that learning skills need to be added to the definition of school readiness along with cognitive and literacy skills due to its predictive nature in the success of students.

Self-Regulation and its Relationship to Self-Regulated Learning (SRL)

Zimmerman (1989) described a student who is self-regulated as someone who actively participates in his or her own learning. These students do not need to rely so much on external factors but rather on their own efforts and skill. Self-efficacy is an essential element of SRL that affects a student's ability to self-regulate their learning. Self-efficacy is defined as the perception someone has about themselves on their competencies to perform a skill or task. Zimmerman (1989) went on to explain that SRL can fit within multiple theoretical models but it best fits within the social cognitive theoretical approach as it explains the advantage of both personal and behavioural influences, explains the reciprocal impact of social learning or behavioural self-regulatory processes, and it recognizes that self-efficacy and the use of strategies are key elements in explaining student motivation and academic achievement. Since the use of

strategies is an essential part of SRL, Zimmerman focused on 14 essential SRL strategies that enhance academic learning and will contribute to potential interventions to improve SRL. Overall, Zimmerman (1989) was able to identify the importance of SRL to the educational community.

Zimmerman (2008) discussed three topics of interest in the area of self-regulated learning. Zimmerman (2008) initially examined the new online resources used to assess a student's ability to self-regulate their learning and went into whether increases in students' SRL improve academic achievement, and finally argued whether teachers can help students to improve their SRL. The use of new online tools to assess SRL has brought forward more unanswered questions and has not been determined an effective tool at this time due to the accuracy of student reporting. However, online resources were used to assess the second and third areas studied by Zimmerman (2008) and these measures appeared to demonstrate improved reliability. The second area examined whether increases in SRL would lead to improved academics. The study used to determine the answer to this idea involved using a think-aloud protocol. Although the study had a small sample size the findings were promising. Students demonstrated excellent growth in the topic of study when they demonstrated improved SRL. The last area argued whether teachers can improve SRL by changing their classrooms and teaching students SRL strategies. The explicit teaching of SRL improved SRL and therefore translated into academic improvements. Generally, the online measures show great promise and should continue to be used and adjusted to attain increasingly accurate results regarding SRL.

Boekaerts and Cascallar (2006) helped to answer four main questions regarding self-regulated learning (SRL). The questions they addressed within their paper dealt with essential strategies for SRL, understanding why some students are able to regulate and others are not, how the environment affects SRL, and how teachers can assist their students in their SRL goals. In an attempt to answer the first question the researchers used the literature to establish that there are a variety of adaptive strategies students use in order to demonstrate self-regulated learning. Some of these strategies include, but are not limited to, note-taking, monitoring comprehension, self-assessing, and assessing motivation and effort. Lastly, the researchers discussed the concept of social learning and students being goal-oriented. Students need to be able to use these key adaptive strategies to guide and direct their learning.

In questions two and three, Boekaerts and Cascallar (2006) looked at student-created goals, the idea that the "learning experiences that students have had in the past trigger expectancies and beliefs, which might have a profound effect on current perceptions as well as the choices they make and the effort they are prepared to invest" (p.204). The researchers then addressed the idea of non-conscious decision-making and the importance of emotional regulation as it is associated with self-regulation. To address question four regarding how teachers can assist student development of self-regulated learning, Boekaerts and Cascallar (2006) discussed setting up learning environments in a way that fosters collaboration. These students would also work on project-based learning that focus on inquiry. Teachers would give students the opportunity to work on multiple types of goals to encourage self-regulated learning.

Boekaerts and Corno (2005) examined the educational psychology term self-regulated learning, the measures that could assess self-regulated learning, and intervention programs that can assist teachers in developing a student's ability to self-regulate. Boekaerts and Corno (2005) acknowledged the many theories of self-regulated learning but concluded that all students who demonstrate that they are self-regulated learners are actively involved in the learning process from the beginning to the end. The theorists also agreed that each student is an individual and therefore there will be inherent differences in how they are able to self-regulate their learning and what strategies may be most effective. The last area the theorists of self-regulated learning agreed on is goal setting and that in order to have maximum achievement students need to have attainable learning and performance goals. This being said, Boekaerts and Corno (2005) were then able to examine various assessment instruments that are applicable to the most current construct of self-regulated learning as well as interventions that support student growth in self-regulated learning. Examples of some of the assessment instruments include: self-report questionnaires, observations of overt behaviour, interviews, think alouds, and traces of mental events and process. Boekaerts and Corno (2005) gave examples of interventions for SRL, including: cognitive-behaviour modification interventions, direct instruction in learning and metacognitive skills and strategies, and interventions based on the principles of socio-culturalism. Under each of these broad headings, Boekaerts and Corno (2005) went into a great deal of detail on several specific interventions that support SRL.

de Bruin and van Gog (2012) presented a paper that examined the relationship between metacognition and metamemory with a students' ability to self-regulate and self-monitor. After examining four studies and two commentaries they surmised that elementary students are capable of monitoring their own memory and regulating their study behaviour. Children appear to be able to monitor memory prior to regulating study behaviour. Many young learners are able to understand the association between monitoring, regulation, and performance. It appears that these areas of understanding need to be explicitly taught so that learners are able to use these skills to improve academic standing.

Gonzalez and Leticia (2013) stated that in order for students to demonstrate success they need to enlist meta-cognitive strategies during learning activities. These strategies include planning, monitoring, and evaluating. The author used high school students to examine what motivated the students to achieve the goals and ultimately regulate their learning. The study showed that most students did not attempt to attain the goal for the purpose of getting good grades but rather to demonstrate to peers that they were not the worst in the class. Although an individual's motivation for achieving the goal may vary from person to person, many students were able to articulate that effort and persistence assisted each individual in regulating their learning.

Paris and Paris (2001) discussed research on self-regulated learning as it applies to the classroom. They stated that self-regulated learning is how we are able to attain the goals set out by others and ourselves. A self-regulated learner will demonstrate a high level of independence in their learning, whereas a student struggling with SRL will show

a lack of organization, not use their time wisely, or be disruptive to others. It is known that younger children are not as adept at being self-regulated but it is unknown whether it is due to cognitive capabilities, experience, or explicit teaching. As students age they are able to demonstrate the characteristics of a self-regulated learner more readily. Paris and Paris (2001) gave several examples of classroom applications including but not limited to: explicitly teaching and monitoring the use of strategies and their effectiveness, goal-setting, project-based learning, inquiry, and reducing the use of objective-based tests. Overall, using these strategies as well as others should assist in developing a student's ability to regulate their learning and ensure that they are able to achieve what they desire.

Zimmerman (2002) stated that in the 19th century, school success was primarily attributed to intelligence. By the 20th century the science of psychology supported the notion that students had individual differences that needed to be considered to foster student success. In the 1970s and 1980s researchers began to discuss the idea of metacognition or a person's ability to understand their own thinking as well as social cognitive which in part is how the teacher can influence goal setting and self-monitoring. It was also identified that when students set goals they demonstrated a stronger academic performance. At the turn of the century, learning began to focus more heavily on the individual. Research also began to look at how students could learn more about their own learning strengths so that they could support their growth and be more effective.

Zimmerman (2002) considered that self-regulated learning is a student's ability to turn their mental ability into academic skills. The student is required to take charge of their own learning in a proactive way in order to meet goals that they have set out for

themselves. Self-regulation promotes life-long learning beyond the context of school and supports the idea of success in life through planning, monitoring, and setting goals.

Fried (2011) supported that emotional regulation can be defined as the way someone is able to control the expression of their emotions. Teachers are struggling to support students in their ability to regulate their emotions and therefore their behaviour. All adults in a school building have an influence over the emotional climate of a school. It is essential that teachers develop an understanding of how to support self-regulation in order to improve achievement. The way people handle their emotions will determine their success. A student who is struggling with emotional regulation will often struggle with other areas of school life. Researchers need to continue to examine the impact of emotional regulation on self-regulated learning.

Self-Regulation and Evidence-Based Interventions

Schonert-Reichl and Lawlor (2010) completed a study on a specific mindfulness-based education (ME) program in order to evaluate the program's effectiveness for students in Grades four to seven. In the information they shared prior to their study results the researchers indicated that considering the growing issues students are facing with their socio-emotional and behavioural needs, schools need to consider delivering interventions that support students in their growth in this area. Schonert-Reichl and Lawlor (2010) stated that with the recent shift to the positive psychology movement it is necessary to explore programs that assist in developing happy humans. Along with this is the research on self-regulation and its impact on school success. The researchers indicated there is little information on the effectiveness of mindfulness education for

children and wished to explore a curriculum that would help to foster positive attitudes and more attentive students.

The purpose of the study was two-fold, first, to look at the value of a ME program for early and pre-adolescents and secondly to determine whether the program can be effective in the real world of education when it is not be administered by experts, rather teachers with basic training in mindful education. The study type was quasi-experimental control group. The researchers used multiple measures to obtain the data pre- and post-study for both the intervention group and the control group. Teachers for the intervention group received extensive training in the delivery of the ME program. The intervention that students received was nine weeks in duration.

The results of the study indicated that there were positive changes in the intervention group versus the control group post-intervention. Specifically, students in the intervention group received more positive comments on their teacher-rated social-emotional competence. As well, students in the intervention group had encouraging improvements in emotions, especially optimism. There were no significant changes in self-concept but a hypothesis was drawn that due to the increase in self-awareness the students may have developed a more realistic picture of themselves. Overall, it was discovered that teachers executed the program with rather high fidelity. Teachers found the program to be well laid out and easy to implement. Although the study was successful, there were three specific limitations the researchers addressed: small number of classrooms involved, teacher ratings versus the potentially more reliable researcher observations, and the absence of an extended follow-up assessment. Due to the relatively

new information on ME, and the limited data in the research, there is ample room for additional research in this area (Schonert-Reichl & Lawlor, 2010).

Meiklejohn et al. (2012) reviewed the current research on mindfulness education programs for both teachers and students in kindergarten to Grade 12. The authors examined 14 studies that used direct instruction of mindfulness education for students in K-12 education programs. The authors also studied three programs that were created to assist teachers in becoming mindful. It was viewed that there were three ways to deliver mindfulness-based education programs: mindfulness can be indirectly taught through teacher philosophy as a result of teacher-based training programs, teachers can directly teach students mindfulness education programs, or both techniques can be used together. The rationale for providing such programming was to identify stressors and provide support to reduce or lessen the stressors. All studies identified positive improvements in overall health in both teachers and students. Some studies identified that there was not only improvement in overall mental health but also improvement in academic achievement. Some of the studies also identified a reduction of symptoms in mental health disorders such as ADHD, OCD, and ASD. The authors gave a list of programs that have had some empirical evidence demonstrating success to assist administrators and teachers in finding out what would best suit the needs of individual students or schools. Although there has been a significant increase in understanding and research on mindful education, the information on their effectiveness is in question. The term mindful education is a new concept and will need additional research completed in order to gain momentum and reach more students. Currently, it has been seen to improve attention,

build pro-social behaviours, reduce stress, develop self-regulation skills and foster impulse control. With this initial evidence, it appears that mindful education programs could be an effective way to reach the masses and assist in improving the overall health and well being of children.

McGlauflin (2010) completed an action research study called the *Calm and Alert Class*. The goal of the action research project was to have students learn how to self-regulate by coordinating the mind, body, and breath. The author used mindfulness practices and yoga to reach the program goal. The action research project was deemed important based on the needs of individual students at a specific elementary school. McGlauflin (2010) reported that there were a high number of students going into Grade One that struggled with self-regulation. Initial interventions were attempted when the students were in kindergarten but staff remained worried about the student's academic and social needs. The team collected data on each student through teacher and parent surveys to assess the changes in students based on the 28-week program that was administered. Data was collected at the start of the school year, in the middle, and at the completion of the program. The results indicated that, with the direct instruction of breathing techniques and yoga, students were able to demonstrate more calm and alert behaviours. With the positive results, the school personnel wished to expand the program to involve kindergarten to Grade Two students.

Diamond and Lee (2011) compiled a list of interventions along with evidence of their effectiveness in helping to develop executive function. It is known that helping to improve a child's executive functioning can support his/her self-regulation growth.

Diamond and Lee (2011) described six scientific approaches, which included: computerized training, hybrid of computer and non-computer games, aerobic exercise and sport, martial arts and mindfulness practices, classroom curricula – specifically *Tools of the Mind, PATHS, and the Chicago School Readiness Program*, and Montessori. Diamond and Lee (2011) concluded that by addressing the mind, body, and soul you will more easily be able to improve executive function in children. One should not focus on one intervention but rather a combination of multiple interventions that address the whole child.

Barnes, Beck, Vogel, Grice, and Murphy (2003) surveyed 476 occupational therapists that primarily worked with school-aged children. They were asked what their perceptions were regarding school-based occupational therapy interventions for children with emotional disturbances. Overall, 87% of occupational therapists (OT) that responded to the questionnaire believed that it was appropriate for them to work with children with emotional disturbances; however, they did not believe that they were adequately prepared to do so. The OTs surveyed indicated that there were several treatment approaches that they could use to assist children with emotional disturbances, which included: adapting school tasks, changing the classroom environment, enhancing play skills, promoting positive social skills and arts and crafts activities. As well, established treatment methods were selected based on individual need: visual motor skills, visual perception, and the *Alert Program*. OTs often used groups where they utilized a combination of the interventions listed above. Overall, OTs believed that their

profession could assist in servicing this growing population of students but how they would assist will need to be examined further.

Cahill (2006) described the implementation of the *Alert Program* (Williams & Shellenberger, 1996) as an occupational therapist working collaboratively with an experienced classroom teacher in a Grade One class. Cahill (2006) described the purpose of the *Alert Program* as a tool to teach self-management to children. She explained how she introduced the program to the classroom teacher and identified how they divided the role for the implementation process of the program. Cahill (2006) discussed the struggles involved in collaborating with a veteran teacher. Although the classroom teacher knew changes needed to be made in her classroom to support student learning through the development of self-regulation skills, remaining consistent and ensuring continuity of the program was a struggle due to the possibility of the teacher falling back into her old ways. Overall, the occupational therapist and classroom teacher were able to establish a routine that supported the development of positive self-regulation skills. Students began to feel empowered by the structure and flexibility the program and program delivery offered.

McClelland and Tominey (2011) researched the efficacy of a self-regulation intervention for preschool students using circle time games. The researchers wanted to answer whether the interventions would lead to improved behavioural regulation for children in the treatment group and whether the treatment group would demonstrate improvement in their academic tasks. The study included 65 four year olds with half of the children coming from family backgrounds with limited education and financial

stability. The initial assessment included a parent questionnaire regarding demographic information, HTKS (Head, Toes, Knees and Shoulders) in the fall and spring, and the Woodcock Johnson III tests of achievement in the fall and spring. The researchers also used the Woodcock-Munoz for the few Spanish-speaking children involved in the study. The intervention included a pullout program for randomly selected children where they played a variety of games for a 30-minute session twice weekly for eight weeks.

Overall, the study indicated that implementing games into circle time that promoted behavioural regulation was indeed advantageous. The gains were the greatest for children who scored lowest on the HTKS assessment in the fall and who came from families with limited education and financial resources. The findings of this study concurred with other studies: children can develop behavioural regulation with intervention. The findings also were able to further prove that with improved behavioural regulation there will be improved academic outcomes. The study supported the efficacy of teaching behavioural regulation skills to preschool children.

Diamond, Barnett, Thomas, and Munro (2007) examined the use of a program called *Tools of the Mind* on a preschool student's ability to improve upon their executive functions (EF) or cognitive control. EF skills are inhibitory control, working memory, and cognitive flexibility. Although these skills play a critical role in learning, teachers often do not teach these skills directly. Through the program *Tools of the Mind*, a program that was designed with Vygotsky's theory of development in mind, 147 preschool age children took part in a study that took place over two years to determine the benefits of explicit instruction of EF skills. A pre- and post-test was completed.

Classroom teachers delivered the program. The results of the study indicated that children who received the intervention achieved significantly higher results on the assessments in comparison to their peers in the control group. The program was primarily administered with children who would be considered at-risk so the effect the program would have for children with typical executive functions are unknown. The positive outcome of this study is that it supports explicit instruction of executive functions as a way to improve overall student learning.

Domitrovich, Cortes, and Greenberg (2007) designed a randomized clinical trial that looked at the *Promoting Alternate Thinking Strategies Curriculum (PATHS)* and its effectiveness in supporting children's social competence and behaviour. Twenty classrooms were involved, half of which received the intervention while the other half was part of the control group. Assessments were completed to gain a baseline in the areas of understanding emotions, attention, interpersonal problem-solving and behaviour. Upon completion of the nine-month intervention, a post-test was administered. The results of the assessment indicated that students who received the universal socio-emotional intervention that focused on emotion, social skills, and self-regulation performed better than their peers in the control group in all areas. Specifically, students who received the intervention were less withdrawn and more engaged in their own learning. This trial supports the *PATHS Curriculum* as a promising practice.

Barnes, Vogel, Beck, Schoenfeld, and Owen (2008) investigated the usefulness of the *Alert Program* for students diagnosed with emotional disturbance. Seven children received the intervention while five served as the control group. The program was

delivered over an eight-week period by an occupational therapist while being reinforced by the classroom teacher. The program is designed to support the development of self-regulation. Teachers and students completed the pre- and post-testing. The study, although small, indicated that students who received the intervention showed a marginal increase in their ability to regulate their behaviour versus the children that were part of the control group. Children in the control group not only did not improve but also in some circumstances did more poorly on the post-test. The researchers concluded that students with emotional disturbance along with their peers could benefit from this type of intervention. As well, it was noted that throughout the delivery of the program teachers were educated incidentally and therefore were able to be more responsive and better equipped to support the needs of the students with emotional disturbances. The sample size was very small, therefore the results cannot be generalized, and future research is required to support the *Alert Program* as a promising practice based on this research project.

Hui, Snider, and Couture (2016) completed a study that examined the impact that a school-based occupational therapist would have on a teacher's perceived classroom management and the satisfaction they have on the management of students with disruptive behaviours. Teachers note the daily struggles that exist in supporting students with behavioural challenges. They rarely feel equipped to deal with difficult behaviours and therefore feel inadequate as professionals. With the support of a school-based occupational therapist in supporting the needs of students with disruptive behaviours through a workshop and eight individual sessions on sensorimotor strategies that support

self-regulation, teachers developed their knowledge and skills on how to address and prevent challenging behaviour. A pre- and post-test was completed and the results indicated that there was a statistically significant improvement on how teachers perceived the way they handled difficult behaviour. This was maintained at the seven-week check post-intervention.

Cobb, Fitzgerald, and Lanigan-O'Keefe (2014) completed an initial pilot study on using an adapted version of the *Alert Program* to support the needs of children age 12-13. The study included 85 students and four teachers. The students involved were from disadvantaged areas and many of the students would be considered to struggle with challenging behaviours. The adaptations and instruction were delivered by two occupational therapists during the initial phase in which students received weekly lessons over a five-week period. The adaptions were made to support the age and needs of the students based on findings from Durlak, Weissberg, Dymnicki, Taylor, and Schellinger. (2011). Overall, upon the conclusion of the five-week session, 85% of students indicated that they enjoyed the program and found it valuable. The students that struggled more in class demonstrated a larger improvement in their overall behaviour over the course of the intervention as compared to peers that demonstrated better adaptive behaviour. Teachers learned alongside their students, which supported the continuation of the program throughout the school week. Teachers also indicated that it was valuable due to the support of the occupational therapist and school administration. Due to the success of phase one, researchers began a second phase, which supported 16 schools. Teachers became the leaders in the delivery of the program.

Durlak, Weissberg, Dymnicki, Taylor, and Schellinger (2011) completed a meta-analysis of 213 school-based programs that support the administering of socio-emotional learning (SEL) programs. The researchers came to several conclusions regarding the inclusion of this style of programming for school-aged children. Overall their findings support the inclusion of SEL programming as they stated that children who participated in the control group had improved success in self-regulation, emotional skills, and academics. The group saw an overall increase of 11 percentile points in academic gains specifically. By completing the meta-analysis the researcher saw commonalities between the programs that saw the greatest success. In order for the greatest success the programs should be sequenced (S), active (A), focused (F), and explicit (E). The acronym SAFE is used to determine the effectiveness of SEL programs.

Blackwell, Yeager, Mische-Lawson, Bird, and Cook (2014) used the *Alert Program* in an early childhood setting as part of a feasibility study to discover the impact of explicitly teaching students about self-regulation and emotions during an eight-week period. The program was taught by the occupational therapist researchers and supported by early childhood educators in the classroom. The researchers had three goals, which included the introduction of the relationship between sensory processing and self-regulation to the students and teachers, increasing a teacher's understanding to support self-regulation throughout the school day by providing OT support and materials, and encouraging children to use self-advocacy skills (p.208). Ultimately the results suggest that with the explicit teaching of self-regulation teachers' and students' vocabulary and actions can be influenced. That being said, this specific program could be utilized as a

tier one intervention that could support all learners in the development of self-regulation skills, which can be used to support their future academic endeavors. As well, this study demonstrates the advantages for using occupational therapists as a way to support children's self-regulation. It was identified by the authors that although the OT support was advantageous it is critical that teachers are trained to support students effectively throughout the school day.

Shanker (2013) broke down the construct of self-regulation further for educators in order to develop an increased understanding of how self-regulation affects children in different domains. In his research he determined that there are five aspects of self-regulation. These aspects included the biological domain which focuses on temperament, the emotional domain which supports the regulation of emotions and how one feels about oneself, the cognitive domain which is quite complex and deals with effortful control, sustaining attention, switching attention, inhibiting impulses, and the ability to deal with frustration and delay gratification. The fourth area considers the social domain which is the ability to develop the behaviours that society deems important and the last domain is the pro-social domain which allows people to demonstrate empathy, the moral compass. Shanker (2013) went on to say that all of the domains work together and cannot be isolated. Shanker (2013) discussed appropriate strategies that support each domain that teachers and parents can use to support the development of a child's ability to self-regulate.

Summary

Through the research it has been clearly defined that self-regulation impacts academic achievement. It is thought that self-regulation is a better indicator to school success than IQ scores (Duckworth & Seligman, 2005) and is also considered an area of concern upon entry into kindergarten to determine readiness for school (Rimm-Kaufman et al., 2000). McClelland and Cameron (2011, 2012), Blair and Diamond (2008), and Blair and Razza (2007) discussed the need for intervention to support self-regulatory difficulties in children as a way to support academic growth. Further studies indicated that, if a child's self-regulation improved, students could reap these benefits and improve academically as well (Matthews et al., 2009; Ponitz & McClelland, 2009; McClelland et al., 2006). The rest of the section carries on by reinforcing that with appropriate assessment and intervention for students with concerns with self-regulation, academic growth is possible (Lerner et al., 2011; Liew, 2011; Denham, et al., 2014; Sawyer et al., 2014)

The second section of the literature review reveals a connection between self-regulation and self-regulated learning (SRL). It focuses on supporting students in creating goals, looks at how the environment affects SRL, and strategies that support students struggling with SRL (Zimmerman, 1989; Zimmerman, 2008; Boekaerts & Corno, 2006; Boekaerts & Corno, 2005). de Bruin and van Gog (2012) and Gonzalez and Leticia (2013) focused on how understanding metacognition can support the use of strategies including the ability to self-monitor. They discussed how explicit teaching in the area of metacognition can support the development of self-regulation through

planning, monitoring, and evaluating. Paris and Paris (2001) connected the classroom to self-regulated learning and said that students who are independent will fare better in the classroom. They also gave several suggestions on classroom applications that should support SRL. Zimmerman (2002) considered that SRL is a student's ability to turn their mental ability into academic success. The student needs to be able to monitor their progress, plan next steps, and create realistic goals. These skills will serve students in being able to demonstrate the skills necessary to be a life-long learner. The section rounds out by connecting the importance of emotional regulation to SRL and achievement (Fried, 2011).

Intervention ideas were provided throughout many of the journal articles as a way to support the development of self-regulation and provide students with the necessary skills or tools needed every day to learn and grow at school and in life. The third section of the literacy review examined specific evidence-based programs, many of them class wide, that support the growth of self-regulation. The first program identified as a promising intervention is mindfulness-based education program. Schonert-Reichl and Lawlor (2010) determined that the program, which focuses on mindfulness, is promising. Mieklejohn et al. (2012) confirmed that mindfulness-based education programs could support self-regulation in school-age children, especially those with mental health disorders. McGlauflin (2010) created a program that also centered on mindfulness as a way to improve student self-regulation. Diamond and Lee (2011) compiled a list of evidence-based interventions that supported the development of executive function. Diamond and Lee (2012) specifically stated that using multiple interventions that address

the whole child and also the needs of many children would be best. The *Alert Program* is discussed by many authors as a way to promote positive self-regulation skills in children (Cahill, 2006; Barnes et al., 2006; Blackwell et al., 2014; Cobb et al., 2014). The *PATHS* program and *Tools of the Mind* program were also examined as ways to support self-regulation (Diamond et al., 2007; Domitrovich et al., 2007). Hui et al. (2016) examined the benefits of using occupational therapists as a way to support students and teachers with self-regulation in the classroom. Shanker (2013) provided a comprehensive list of specific strategies that are in line with the various domains he associated with self-regulation. Lastly Durlak et al. (2011) provided a way for educators to assess a socio-emotional learning program as potentially successful. Not only did they complete a meta-analysis of 213 SEL programs they concluded that if the programs were sequenced (S), active (A), focused (F), and explicit (E) or SAFE, they would have merit and could be a successful match for teachers and students.

The literature contained a number of over-arching themes that allowed for them to be used as sufficient evidence to support the need to explore self-regulation in the early elementary years. The three major themes that have emerged from the research include: self-regulation and academic achievement with teacher education and assessment, self-regulation and self-regulated learning, and self-regulation and evidence-based interventions. Although there are distinct themes, the literature often significantly overlaps. For example, when a researcher is discussing self-regulated learning, he/she often discusses interventions and assessment. As well, the research clearly indicates that

self-regulation impacts learning and academic achievement; however, with appropriate evidence-based intervention students can and will succeed.

Chapter 3: Research Methods

Considering the immense amount of research in the area of self-regulation, it is pertinent to narrow down the research to the most relevant information for educators. The researcher wanted to promote the importance of creating a society of young people who can be adaptable in any given situation. By creating *An Educator's Guide to Self-Regulation in the Early Elementary Years,* it is the researcher's hope that educators in elementary schools can utilize it to create more opportunities in their classrooms for students to learn about their self-regulatory needs.

In Chapter 3, the researcher will first look at the specific qualitative methodology used to frame the research and to rationalize the reason for the construction of this handbook. Second, the researcher will present the ethical concerns and address the issues regarding confidentiality. Next, the researcher will discuss the specific procedures, which will include how the participants were recruited and how consent was obtained from each participant. There will be a discussion following this section on the agenda of the focus groups, which will include information on how the groups were conducted. In the final part of the chapter, the researcher will discuss the qualitative content analysis, which encompasses the data analysis, evaluation of the study, and the validation of the study. Finally, the organizational layout of the handbook will be addressed. Overall, this chapter will focus on the how the research was conducted in order to support the need for the handbook and describe how the data came about through the research.

Specific Qualitative Methodology

The qualitative research paradigm can be defined as an approach that allows the researcher to study and understand a significant phenomenon (Berg & Lune, 2012). According to Cresswell (2012), there are five steps that support the collection of qualitative data during the research process to conduct an adequate research project: identifying participants, obtaining permissions, collecting data, designing or acquiring a tool to collect the data, and administering the data collection procedures. Once the data have been gathered, the researcher needs to analyze and interpret the data. Creswell (2012) identified six steps in this process: reviewing the literature, developing a research question or statement(s), collecting, analyzing, and interpreting the data, and finally reporting and evaluating your findings. In both the collection of the data and its analysis and interpretation, these steps were completed in the order required in obtaining the best results of this study.

In order to complete research project, the researcher began the study by reviewing the literature that seemed to pertain to the direction of the research. Once the researcher surveyed an adequate number of sources, she was able to define a question that could be addressed through additional research. She decided that the best way to answer the research question was to complete a qualitative content analysis combined with focus groups. The researcher then took time to identify participants, gain permissions from the board of education and the Saskatoon Public School Division as well as from the UNBC Research Ethics Board, then gain the individual participant permissions. The data was

then collected during the focus groups and recorded by the researcher. Finally, the researcher analyzed and interpreted the data in order to create the intended handbook.

The data from the focus groups were used to inform the direction of the qualitative content analysis. The researcher chose literature based on the themes that arose from the focus groups. Through the qualitative content analysis the researcher collected, analyzed, and interpreted the literature to create the handbook for teachers on self-regulation.

Specific Research Methods

As discussed in the previous paragraph, the methods that the researcher used for this research project were qualitative content analysis and focus groups. Qualitative content analysis can be described as a way for researchers to identify the most current information on a specific topic by examining the current research thoroughly to discover various patterns and themes (Berg & Lune, 2012). Focus groups are described as a type of interview with multiple participants conversing on the topic provided by the researcher. Focus group interviews use the group dynamics to elicit conversations and discussions on the topic provided (Berg & Lune, 2012; Krueger & Casey, 2009). Both methods are discussed in greater detail later in this chapter.

The qualitative content analysis and focus group methods demonstrated a good fit for this particular research project due to the nature of the information the researcher aspired to attain which includes themes from the current literature and opinions of occupational therapists and teachers as to what they see as important. Initially the researcher conducted focus groups with occupational therapists, then teachers. The

themes that surfaced through the focus groups provided the starting point for the qualitative content analysis. The researcher used the themes that occupational therapists and educators identified as important. The themes that were identified as important would be used in the handbook if they were also identified in the qualitative content analysis as significant. Through the qualitative content analysis the researcher was able to acquire the current research on self-regulation as it pertains to the field of education in primary schools, which served to bring forward additional themes and supported the themes that were brought forward in the focus groups. These themes were identified as the most common in the field of self-regulation for children in primary school. By completing the focus groups and using them to support the direction of the qualitative content analysis, the researcher feels that the voice of educators in the field along with their occupational therapy colleagues are being represented in the handbook. By completing the qualitative content analysis the current research is being represented in order for educators to feel confident in supporting students that are struggling with self-regulation.

Ethical Concerns

All research projects have ethical concerns that need to be addressed and explicitly identified to the participants. This research project commenced once the ethics committee at the University of Northern British Columbia and the Saskatoon Public School Division reviewed it. The potential ethical concerns that could have arisen dealt primarily with participant anonymity and participant confidentiality. At conclusion of the

research there have been no concerns. The researcher could not guarantee the anonymity of the participants but will ensure that all data collected remains confidential.

Confidentiality. The University of Northern British Columbia policy and procedures for research involving human subjects require researchers to inform participants of their rights. The participant's safety needed to be protected; informed consent was obtained from each participant; each participant was made aware that his or her participation was voluntary and could be withdrawn at any time; and the project was granted approval by the ethics board at the UNBC. Data were collected, but names and any other personal information regarding the participants were withheld. Participants were required to keep the information shared within the focus groups confidential. The focus groups for this particular project were used to examine opinions of teachers and occupational therapists on important topics regarding self-regulation. A list of participant responses was collected.

Research Procedures

In this section, the researcher outlines the procedures through which the research was conducted which included the way in which the participants were selected and how consent was obtained. It then goes on to address the specific focus groups and the qualitative content analysis. The data was then analyzed and the study evaluated and validated. Finally, the organization of the handbook is addressed based on the data acquired from the focus groups and qualitative content analysis.

Recruitment of participants. The specific sampling method that was used is called theory or concept sampling. Concept sampling can be described as a strategy that

can be employed to discover specific themes from a desired group of participants based on experience (Berg & Lune, 2012). The researcher was able to gain a purposeful sample of participants from various schools in an urban setting in Saskatchewan. The participants discussed their experience with students who struggle with self-regulation. The sample included teachers (special educators, classroom teachers) who teach preschool to Grade Four classes. In order to acquire the sample, the researcher created an email with a summary of the research project and had the school division's communication officer distribute the email. Once the researcher had the sample size of 12 teachers, focus groups were developed. The researcher ran three focus groups with three to five teachers in three different school locations throughout the school division. Along with the teacher-focused groups, the researcher completed one focus group with occupational therapists at their private office within the city of Saskatoon that included three occupational therapists and two occupational therapy students.

The focus group invitations were sent out throughout the entire school division by email. There was no expected reply via email. Educators who had experience with children in preschool to Grade 4 were to attend a focus group if they were able to at the desired location of their choice. Locations for the focus groups were located at three different spots throughout the school division and held at 4:00 pm. Permission to hold the focus groups at the three different locations was obtained via email with the school administrator. Although written notification of attendance was not requested, three individuals responded with further questions and indicated that they would be in attendance.

The first focus group had eight educators in attendance and the following two groups had two in each of them. Initially, the researcher had hoped for 15 educators to be involved in the focus groups. This was an arbitrary number chosen based on the hopes that that number of people could spark conversation and move each other forward in their thinking and wondering. The unfortunate part is that two of the focus groups were very small which did not allow for effective conversation. The individuals attended together and were like-minded in thought.

The focus group that involved the occupational therapists was conducted in a slightly different manner. The researcher contacted the lead occupational therapist and owner of the clinic by email to ask for his participation and the participation of his staff. The researcher and lead occupational therapist determined a time when he and all of his staff could be available to attend the focus group. The location was at the clinic and all of his staff and the occupational therapy students at the time were involved in the focus group.

Consent. The researcher acquired consent from an urban school board in order to conduct the study. Upon receiving consent from the coordinator of research and measurement, the research was then able to be conducted at all levels within the school division without receiving the individual approval of the director of education, the school principals of each participant, or the union. Each participant did provide individual consent upon attending the focus group. For the occupational therapy participants, the lead occupational therapist and owner of the clinic consented to the focus group. Consent

was then acquired from each individual occupational therapist and occupational therapy student.

Focus groups. Krueger and Casey (2009) indicated that focus groups assist researchers in obtaining qualitative data that can be pertinent to the research topic by tapping into the minds of a group of stakeholders with insight and experience on the topic. The researcher was able to complete this task by establishing focus groups that supported gaining information on the topic from professionals that are currently working with students struggling to attain and maintain optimal levels of regulation. As well, Krueger and Casey (2009) stated that focus groups can assist researchers in being responsive to the clientele they wish to assist. The professionals that participated have a clear stake in the project as they came to the focus group to gain insight into self-regulation and support other professionals in their journey of understanding self-regulation. The educators that were involved clearly wanted an improved path to follow when supporting students and the occupational therapists wanted to support teachers with their expertise in the field. It is essential when conducting focus groups that you have a clearly identified purpose.

For the purpose of this research project, the researcher used focus groups as an exploratory tool to identify potential topics that should be examined during the qualitative content analysis. The design of the focus group as described by Krueger and Casey (2009) was a multiple category design as the researcher used two different types of participants sequentially.

The researcher conducted three focus groups. The first focus group had eight participants and the two following each had two participants. The educators involved in the focus groups were all currently teaching children experiencing self-regulation difficulties in preschool to Grade 4 classrooms. The purpose for the focus group was to ask classroom and special education teachers their opinions on what type of information they would like to know about self-regulation as it pertained to elementary students. The focus groups served as an opportunity for teachers to brainstorm ideas that would help them to better serve students with self-regulation needs. Some examples of struggles their students were having included: blurting, not remaining seated, hands-on behaviour, chewing on non-food items, limited focus on the topic being discussed, and not following the requests of adults. These struggles were posing great disruption to the teaching and learning that was going on in the classroom. The overall tone of the classrooms was being affected and teachers indicated that they were not able to support all of their students.

The focus group that included the occupational therapists and occupational therapy students revealed that each of them was currently working with several children that required support for self-regulation. They indicated that many of the referrals that they receive from schools are for children who need support with behaviour at school and in the home. The purpose of the focus group for occupational therapists was to help the researcher gain an understanding of what occupational therapists deem important for educators to know. Children are often referred to the occupational therapists for support with self-regulation and the therapists identified that it is essential for educators to

understand the developmental path of self-regulation, symptoms of students who struggle with self-regulation, and strategies to support and prevent self-regulation concerns. The occupational therapists were particularly concerned with the prevention of behaviours.

Through note-based analysis the researcher created a list of areas of interest and areas requiring further information by the teachers in the hope that the list would help support the qualitative content analysis. The list included topics such as how self-regulation develops, what symptoms children can display if they are struggling with self-regulation, preventative classroom and individual strategies to support learners struggling with self-regulation, and class-wide programs that can support children with understanding self-regulation. The general themes that emerged from the focus group with occupational therapists and occupational therapy students indicated a significant overlap between what teachers wanted to know and what occupational therapists thought teachers should know. Upon completion of the focus groups the researcher determined that it was important to collaborate with educators and occupational therapists to ensure that the researcher addressed pertinent topics. The qualitative content analysis then provided the data needed to qualify the decisions about what to address in the project. During the focus group discussions the researcher recorded anecdotal records of the topics that were being brought forward by the participants that the researcher considered for the qualitative content analysis. The participants filled out a demographic information sheet that indicated some of their personal information that was pertinent to the research project.

Qualitative content analysis. Krippendorff (2013) defined qualitative content analysis as a technique that allows the researcher to make replicable and valid inferences from a variety of sources including but not limited to text. Qualitative content analysis allows researchers to develop a greater understanding of specific phenomena. The researcher chose literature based on the themes that emerged from the focus groups. The specific themes that emerged included: how self-regulation develops, what symptoms children display if they are struggling with self-regulation, preventative classroom and individual strategies to support learners struggling with self-regulation, and class-wide programs that can support children with understanding self-regulation. Once the researcher began immersing herself in the literature more themes began to emerge. These themes included self-regulation and its relationship to academic achievement and self-regulated learning. These two themes easily fit under the umbrella of what the focus group participants were looking for and increased the validity of the research.

Berg and Lune (2012) provided a comprehensive model that the researcher used in order to accomplish the purpose of the research project. The researcher read the literature and established categories through the use of two types of coding systems. The researcher wanted to search for broad categories. While coding the focus group data the researcher used In Vivo coding hoping to maintain the voice of the participants. An example of this would be "I just want my class to settle so that I can teach." A code that emerged from this phrase was the idea of establishing routines and helping to support students in settling or explicitly teaching skills that support regulation. The second type of coding used, which occurred during the qualitative content analysis, was theming the

data. The researcher was not looking for specific words but rather an overall concept or theme that emerged from the literature. An example of this would be how self-regulation is deemed critical for student academic success by some authors. The researcher then used the findings from the focus groups to drive the qualitative content analysis in order to support the educators' desired learning in the field of education in order to support student learning. These coding systems were used to determine current and best practice in the field of self-regulation (Saldaña, 2009).

Data analysis. The purpose of qualitative research is to analyze the data into themes in order to best understand the information presented to the researcher by the participants or written documents. The researcher examined the focus group data using In Vivo coding. The researcher wanted to use the language of the participants in order to move forward in the qualitative content analysis. The participants provided rich information that supported the need for the self-regulation handbook. The researcher noted that the participants were looking for a handbook that could serve as a quick reference guide. One participant stated that "There are many good resources on self-regulation but which one do you choose?" Another participant stated, "It would be nice if there was a quick reference document that included information from many of the top self-regulation sources." The participants clearly identified the need for a quick reference handbook to help support their journey in understanding self-regulation. As identified previously there were major themes that emerged from the focus groups. These themes emerged while coding. The In Vivo method supported the researcher's need to use teacher voice as a driving force for the project.

Once the researcher completed first cycle coding by surveying the focus group data, she was able to look more deeply at the literature. It was decided that due to the outcome of the project, being a handbook for teachers on self-regulation, it was necessary to examine major themes in the literature. The researcher used the method of theming the data to complete this task. The researcher looked at the intent of the articles to support topics that needed to be included in the handbook. After compiling a list of themes that emerged from the literature the researcher compared the data set from the focus group and the data set from the literature and began to refine the categories of information that could be part of the handbook. The researcher wanted to ensure that the educators' voice was present in the handbook yet adhered to what the literature was indicating. The two sets of data were similar; there was much overlap between what educators wanted to know more about and what the literature wanted to teach educators about. Chapter 4 will examine the specific themes that emerged from both the focus groups with educators and the qualitative content analysis (Saldaña, 2009). Overall, the researcher used the focus groups to create the initial themes that were important to the target audience of the handbook and used those themes to investigate the research on the topic to compile relevant information for the audience.

Validation. The researcher has ensured that all of the data presented is accurate, and the sources used appropriate for the research project. The researcher validated the data by using the data from the focus groups to begin the process of exploring the literature (Berg & Lune, 2012; Flick, 2002). The researcher used the participants and current research to identify what the most important areas were to present within the

research project. By doing this, the researcher has validated the concerns of colleagues and the current research on the topic. The researcher needed to present the material with integrity. As we are not dealing with new research, the researcher is simply providing a resource of culminating material for primary educators on the topic of self-regulation.

Organizational Layout of the Handbook

The researcher has included the following sections in the final handbook: Section 1 examines the current research on self-regulation and self-regulated learning. This section focuses on the current research that indicates what self-regulation is and how supporting students with self-regulation will benefit them academically and socially. Section 1 also assists readers in understanding current terminology on the topic. Section 2 focuses on self-regulation and academic achievement. The section focuses on how self-regulation improves a student's capacity to attain academic goals. Section 3 includes the current research on interventions/strategies that support the development of self-regulation for students in elementary school. It includes the role occupational therapists play in developing self-regulation skills in children, specifically special populations, such as students with ADHD or ASD. Section 3 also examines current ways to assess self-regulation by classroom teachers and OTs. Section 4 takes a comprehensive look into specific programs that support student learning in self-regulation. This section addresses the benefits of individual programs and discusses the population that the program best suits. Section 5 summarizes the project and offers conclusions that support classroom teachers and special education teachers in developing their student's self-regulation skills.

Summary

In this research project, the researcher chose to examine self-regulation as it pertains to the field of educating students in the primary grades. The research project looked at how self-regulation assists in the development of the social, emotional, and academic domains for all children. The research project used the qualitative methods of content analysis and focus groups. The focus groups were conducted first in order to gain insight from educators on what topics are of greatest interest to them on the topic of self-regulation. The researcher then completed a qualitative content analysis to support the educators' interests and to expand as needed to ensure the handbook would include themes that are prevalent in the current research on self-regulation.

The next area that was considered was ethics. The UNBC Research Ethics Board, the Saskatoon Public School Division, and Saskatoon-based occupational therapy company reviewed this particular study prior to the start of the research. Confidentiality of the participants was the only concern. Participants were made aware of the concern and the researcher ensured that she would take necessary precautions to ensure anonymity. The participants in the focus groups were also made aware that they could withdraw from the study at any point.

The research procedures involved the recruitment of the participants. The participants for the educators' focus group were contacted by email; the lead occupational therapist was contacted and he invited the other therapists and students at his clinic. The organizations and individual participants consented to participate in the study and then the focus groups were established. The researcher conducted four focus groups, one with

occupational therapists and three with educators. Upon completion of the focus groups, the researcher used In Vivo coding to find themes. These themes were used to support the qualitative content analysis where the researcher used the coding method of theming the data to connect the research to the participant needs. The data collected from this research project will help to support the development of knowledge of self-regulation and evidence-based intervention handbook required to support children in the classroom.

The last section in this chapter explains the layout of the handbook, which addresses the major themes that were clearly important to educators and the literature that is currently available. This outline was used to create the handbook that is Chapter Five in this research project.

Chapter 4: Qualitative Data Results

Chapter 4 will be used to interpret the results of the data found during the focus groups and qualitative content analysis. The researcher will discuss the focus groups and the qualitative content analysis in more detail and present tables of the themes that emerged through specific coding with the focus groups and theming the data for the qualitative content analysis.

Focus Group Data

The data that was collected during the focus group sessions with educators clearly indicated a need for a concise document that supports the classroom and special education teachers in their growth and understanding of self-regulation. One educator indicated, "I just want my class to settle so that I can teach." Although all educators knew of self-regulation, how it can negatively impact student performance, and some initial strategies that can be used to support students who are struggling with immediate difficulties, the educators in the focus group sample were seeking improved understanding to help students' long-term growth. Teachers questioned students' developmental functioning, class-wide programming to help support the wide array of needs, the need for more adult support in classrooms, information about body breaks and other specific strategies, improving upon one's own self-regulation needs, helping students to identify their own self-regulatory needs, and providing parents with information on what self-regulation is and its importance. One educator with more than 10 years of experience also identified that their "student's ability to self-regulate has shifted drastically in the last 10 years." The educators acknowledged that many students

appear to be less able to maintain attention, begin tasks, follow multi-step directions, avoid blurting, and keep their hands to themselves. With these maladaptive behaviours in some children becoming increasingly prevalent according to the educators involved in the focus groups, these educators identified self-regulation as a growing field that requires understanding by the education community.

The focus group with occupational therapists identified that self-regulation is a developmental process that they help to support in their work with children. One therapist stated, "Teachers can play a large role in supporting or increasing stress in their students." Another OT indicated, "Spikes or peaks in the brain due to various stressors or events can cause issues with regulation that can affect a student's ability to remain alert or attentive during expected tasks." The lead OT indicated, "People working with children need to understand that when a child does not respond behaviourally in a favorable way that they may not have the skills to work through the situation and they need support from an adult. These students need an adult that they can regulate too. Teachers need to know their own regulation needs so that they can model how to effectively self-regulate. Co-regulating with your students can be extremely advantageous in supporting the students that you are working with." The occupational therapists involved in the focus group also suggested things that teachers can watch for when working with all students. Areas to focus on include but are not limited to noticing individual student's routines, gauging the amount of time spent on individual activities, noticing triggers (what happens before maladaptive behaviour occurs), and paying

attention to what strategies children are using to help themselves self-regulate such as self-talk or movement breaks.

Occupational therapists that participated in the focus group suggested that self-regulation needs to be set as a primary goal and teachers need to structure a program that supports students' self-regulation. When students are regulated they are more easily able to attain the desired academic goals. Teachers can include movement breaks that have a sensory balance to attain desired levels of regulation. Occupational therapists can be used to support the design of appropriate movement breaks that help to link the activity to the behaviour for whole classrooms of children as well as the individual. Once students have a greater understanding of their own regulation needs they can begin to monitor and advocate for themselves.

Assessing individual student needs was clearly communicated as an important process in identifying and supporting students that struggle with self-regulation. There are a number of assessments that can be administered by occupational therapists as well as observations and teacher interviews. One of the standardized assessments that can be used is *The Sensory Profile School Companion*. Although occupational therapists strongly believe in individual therapy as a way to support students they also recognize the need for more class-wide programs with the rising needs in classrooms with children who are experiencing difficulty with self-regulation. OTs are also recognizing that it is difficult to transfer skills from the clinic to the classroom. Some key components that can be appropriate for whole-class interventions include growing independence, positive language, saturating the environment with the same language, such as using *The Alert*

Table 1: Table of Topics Extracted from Focus Groups

Topics of Interest	Exemplars
Development of Self-Regulation (SR)	"I need to understand how self-regulation develops so I can figure out how to help my students" Grade 3 Teacher
	"It would be important for teachers to understand the developmental trajectory of self-regulation so they can understand where their students are at in order to move them forward" Occupational Therapist
Supporting Long-Term Growth in SR	"I want my students to be able to help themselves. If I teach them some strategies that they can use, they will be better served" Grade 2 Teacher
	"Providing children with a variety of tools to support their development and learning will encourage more strength in all areas" Occupational Therapist
Supporting and Educating Families on SR	"Self-regulation is a term that is frequently being used, but many don't understand, parents and families need some education around how to support their children's growth in this area" Kindergarten Teacher
Improving Ones' Own SR Skills	"I am finding it difficult to manage my own ability to regulate in the classroom. I need to learn how to model being calm for my students" Grade 3 Teacher
	"Adults that work with children need to model the best strategies to self-regulate. We are not perfect, but how we handle our needs will support the children we work with" Occupational Therapist
Class/School-Wide Interventions	"I am interested in learning more about a variety of class-wide programs that are available" Grade 3 Teacher
	"Although class-wide intervention is a positive start to support self-regulation, incorporating a school-wide model with consistent vocabulary is even better"

	Occupational Therapist
Co-regulation	"If an adult can complete activities with children there is often an increase in buy-in for the child. Co-regulation offers direct support for struggling children with an adult that is by their side" Occupational Therapist
Direct Therapy	"Although direct therapy is optimal for the neediest children, I know that it is not always possible. I would like to work with teachers to provide indirect support for these children" Occupational Therapist

Program as a class-wide program. The occupational therapists suggested that taking the programming beyond the classroom and throughout the school as a school-wide intervention may be the most effective. The occupational therapists suggested that creating a calm space with creative seating and functional groupings will also help to support student self-regulation.

Once the focus groups were complete, the researcher analyzed the data by looking at the information that individual participants deemed important. The researcher's intent was not to seek out all possible themes that could arise but rather do an initial survey of both educators and occupational therapists on their view of what areas should be of focus in a handbook for educators. Data was extracted from the focus groups through the conversations. Table 1 summarizes the topics that arose through the conversations during the focus groups between the participants and the researcher. The focus groups with educators and occupational therapists helped to identify seven areas that are of strong importance to the educators and occupational therapists involved. This list was used to guide the qualitative content analysis of the current research in self-regulation.

Content Analysis of the Literature

Upon extensively reviewing the literature for themes that would be relevant to the handbook, a number of topics appear frequently. These themes address the areas that educators and occupational therapists in the focus groups identified as important. Table 2 is a list of themes that can be supported by research to have present in the handbook for educators. The researcher has noted that although there is a great deal of information on the subject area, there were a select group of themes that emerged. Under each theme are lists of examples or topics that play a role in developing the theme. For example, the theme of self-regulation deals with the overall term and then narrows to include emotional regulation, cognitive regulation, behavioural regulation, and attentional regulation. It then can then branch into the growth and development of self-regulation and focus on specific health needs that are typically associated with symptoms of self-regulation deficits.

Analysis of the Data

In considering the focus group data and the data from the content analysis, the researcher needed to examine what the literature said as well as look at the needs the educators and occupational therapists addressed during the focus groups. The data in the focus groups suggested that teachers are seeking improved understanding on how self-regulation develops, class-wide supports, information on body breaks, how to improve their own regulation, helping students to understand what self-regulation is and its importance, and providing parents with information about self-regulation and how they can support its development (Table 1).

Table 2: Table of Themes Extracted from the Content Analysis of the Literature

Theme	Exemplars
Self-Regulation	Emotional regulation, cognitive regulation, attentional regulation, behavioural regulation, health concerns such as ADHD, FASD, ASD, the developmental trajectory of self-regulation, social emotional learning
Class Wide/School-Wide Interventions	Mindup, Tools of the Mind, PATHS, circle time games, Alert, Zones of Regulation
Teacher Education	Collaboration, wellness, school climate
Executive Function	Working memory, attentional shifting, inhibitory control, planning, problem-solving, effortful control, cognitive control, self-advocacy, self-awareness, self-monitor, self-efficacy, self-discipline, self-evaluation, self-control, self-determination, metacognition
Occupational Therapy Intervention	Strategies that support the development of SR, body/movement breaks, direct therapy, class-wide programs, teacher training, co-regulation, strategies

Occupational therapists identified that classroom teachers are an integral part of supporting the development of self-regulation in children. The data from the focus group suggested that the handbook should include relevant data on body breaks, whole-class interventions, individual programming, collaboration, creating calm spaces, co-regulation, developmental information, and symptoms of a dysregulated student. Occupational therapists understand that in order for students to be able to regulate optimally teachers need to develop an environment that is conducive to learning. They also need to understand what they can do to encourage optimal states of regulation and

prevent dysregulation. Occupational therapists believe that they can support this process with professional development and direct support within the classroom.

The content analysis confirmed that the topics from the focus groups with teachers and occupational therapists are relevant. The content analysis also revealed that there is an abundance of topics that could be of importance to educators that could also be included in the handbook. Table 2 reveals a list of themes that emerged from the literature. The researcher believes that the list that was generated by the content analysis has served as a tool to support the handbook. Topics for the handbook have been chosen based on teacher and OT feedback from the focus groups as well as from the experience of the researcher and the data found in the literature.

In order to actualize the handbook, the researcher extracted the themes that have emerged from the literature from Table 2 and cross-referenced the topics in Table 1 that appeared from the focus groups with educators and occupational therapists. The handbook includes information for educators that is easy to read and supports student needs. The handbook provides ready-made resources that educators can use to support their conversations with parents and other educators without having to thumb through an entire document. The researcher aimed to be concise, yet provide ample material for educators to better prepare themselves for their students. As one educator stated, "I just want my students to be ready to learn." It is the researcher's hope that the handbook will help to support educators in doing just that.

Summary

Chapter 4 has focused on the data that was collected in order to write the handbook for educators on self-regulation. The chapter addressed the information that was drawn out of the focus groups that included educator and occupational therapist input. Table 1 summarizes that data and includes examples of direct quotes from individual participants that were involved in the focus groups. The direct quotes help to support the need for the handbook as well as determine areas of focus that educators and occupational therapists deemed important. Table 2 includes a summary of themes that evolved from the literature through a content analysis on self-regulation. These themes support the data that was collected during the focus groups. The content analysis also provided additional areas that will support educators in their understanding of self-regulation and these topics are included in the handbook.

Chapter 5: Handbook: An Educator's Guide to Self-Regulation in the Early Elementary Years

Chapter 5 utilizes the research from the previous chapters and actualizes the findings. The results from the focus groups and the content analysis provided the data that informed the development of Chapter 5. The focus group data indicated that educators wanted to increase their understanding of what self-regulation is and how they can better support themselves and their students. The educators wanted to discover how to support individual students on their journey as well as whole classes by using evidence-based programs. The focus group with the occupational therapists determined that it was critical to that group that educators learn the symptoms that students with self-regulation concerns exhibit and then inform teachers what interventions would best suit the symptoms.

The exploration of the current literature on self-regulation through the content analysis was able to support what educators were looking for in the focus groups. The content analysis was able to provide the answers to the questions educators were seeking. The content analysis brought forth a concrete definition of what self-regulation is, why it has merit as a field of study that supports academic learning, how it develops in infants and children, the impact of the development of self-regulation, and the strategies and programming options that are evidence-based and support the development of self-regulation for children. Considering the vast amount of data that was collected, the handbook was narrowed to provide explicit information that educators of young children were seeking as indicated through the focus group sessions.

An Educator's Guide to Self-Regulation in the Early Elementary Years

Table of Contents

This handbook was created to support educators in their journey in understanding self-regulation. It begins with a section on what self-regulation is, how it develops, and some key terms that occur in the literature that are essential in understanding self-regulation. The next section looks at how we as educators can support students who are demonstrating signs of self-regulatory concerns. Strategies that support individuals will be presented and then the handbook will move to class-wide supports for all students. These class-wide supports are designed not only to improve individual student's self-regulation but also to support educators in creating an environment that supports developmental growth in self-regulation for all students. The handbook ends with attachments that are a summary version of self-regulation and can be used to support educators and parents by providing a quick glimpse into what self-regulation is, how it develops, resources, and strategies.

Introduction

In the late 1960s, Walter Mischel began an experiment that would forever have society considering the relationship between success in life, self-control and self-regulation. School success, marital status, profession, and overall happiness measured the lifetime success. Mischel had four-year-old children attempt to inhibit the impulse to eat a marshmallow that was presented to them in order to receive an increased reward. Overall, the children who were able to refrain from eating the marshmallow in the allotted time demonstrated increased success in life. The study was not intended to be longitudinal, but the success and results were intriguing and warranted the continuation of the study. Children who ate the marshmallow immediately struggled in general life

more than those who either waited longer to eat the marshmallow or those who were able to wait to get the additional promised reward (Mischel, Shoda, & Rodriguez, 1989). This study was the first of its kind to place an extreme value on self-control and self-regulation as a primary means for lifetime success. It has taken the field of education over thirty years to consider this study as a way to improve the success in students. Now that we know that children become more successful adults when they are able to delay gratification, can we teach this? The answer is an obvious yes!

Self-regulation is a word that seems to be thrown around the educational world daily. It is often used to describe a child's poor behaviour. It may refer to a child's inability to pay attention, a physical outburst, or when a child is not following expected routines. Self-regulation is so much more than this. The wonderful thing about self-regulation is that it is developmental and therefore can be nurtured. As educators we have an opportunity to change the way a student moves through life by supporting them in their development of self-regulation. As Dr. Ross Green says, "Kids do well if they can." There is no need to throw our hands up in the air in frustration but rather look at self-regulation through a new lens, a lens of learning and growth for students.

What Is Self-regulation?

Self-regulation is defined as:

> **The ability to flexibly activate, monitor, inhibit, persevere and/or adapt one's behaviour, attention, emotions, and cognitive strategies in response to direction from internal cues, environmental stimuli, and feedback from others, in attempt to attain personally relevant goals. (Moilanen, 2007, p.835)**

Essentially, self-regulation is a person's ability to maintain control over how they respond to everyday situations so that they can achieve a desired outcome. These outcomes can be personal, social, academic, physical, and so on. Our ability to self-regulate helps us to stay the course even when something becomes difficult or there looks to be a better option in that moment. It also helps us to remain level-headed when situations are difficult emotionally. The ability to self-regulate is a skill that permeates our entire day. We are consistently challenged to remain focused and in control of our bodies and minds. Children need support in doing this and receive help from supportive adults and peers as well as various other strategies.

Shanker (2013) breaks the construct of self-regulation down further for educators in order to develop an increased understanding of how self-regulation affects children in different domains. In his research he has determined that there are five aspects of self-regulation. These aspects include the biological domain which focuses on temperament; the emotional domain which supports the regulation of emotions and how one feels about oneself; and the cognitive domain which is quite complex and deals with effortful control, sustaining attention, switching attention, inhibiting impulses, and the ability to deal with frustration and delay gratification. The fourth area considers the social domain which is the ability to develop the behaviours that society deems important, and the last domain is the prosocial domain which allows people to demonstrate empathy, the moral compass. Shanker (2013) goes on to say that all of the domains work together and cannot be isolated, although there can be intervention that is more appropriate for a domain that

seems to be showing more deficits. Learn about your student's strengths and use them to work towards their struggles.

Why Is Self-regulation So Important?

Rimm-Kaufman, Pianta, and Cox (2000) completed a national study in the United States that examined the difficulties children were experiencing upon entry into kindergarten. The study indicated that slightly over half of the children entering kindergarten were able to do so successfully. This means that the other half experienced difficulties that were of concern to their classroom teachers. This statistic should alarm the education community and encourage us to think beyond the typical academic interventions. The areas with which students struggled most frequently, as identified by their teachers in the study, included: following directions, lack of academic skills, disorganized home environment, difficulty working independently, lack of formal preschool, difficulty working as part of a group, problems with social skills, immaturity, and difficulty communicating. These skills are recognized as being crucial indicators of a student's future school success (Rimm-Kaufamn et al., 2000).

Duckworth and Seligman (2005) completed a study that looked at self-discipline as a means to predict school success as opposed to the more conventional use of IQ testing. The study resulted in the authors suggesting that self-discipline was a better predictor of school success than IQ. The study concluded that students who were self-disciplined outperformed peers in all academic areas from report card grades to admittance into competitive high schools. Diamond and Lee (2011) suggested that creativity, flexibility, self-control, and self-discipline were four qualities that children

would need to be successful in society as our future leaders. Blair and Diamond (2008) indicated "the capacity for self-regulated learning, socio-emotional skills that foster the relationship, and executive function skills that promote self-regulation are quite literally foundational for learning" (p. 909). Many of the deficits which the students demonstrated in the Rimm-Kaufman et al. (2000) study are defined as deficits in self-regulation. Many researchers conclude that school success is a direct result of a child's ability to remain at optimal regulation levels throughout the school day (Blair & Diamond, 2008; Blair & Razza, 2007; Duckworth & Seligman, 2005; McClelland & Cameron, 2011; Shanker, 2013). Considering the astounding statistic that half of children entering kindergarten do not demonstrate that they are ready to learn (Rimm-Kaufman et al., 2000), it is crucial that educators consider that there are skills that are essential for children to be competent with prior to, or in concert with, developing academic proficiencies.

How Does Self-regulation Develop?

Understanding the development of self-regulation is key in assisting us in choosing programming options to help improve a child's ability to plan, attend, monitor, and persevere to attain personally relevant goals in the academic, behavioural, emotional, and cognitive domains. By promoting positive self-regulation students will feel calm and alert. Their stress levels will be reduced, and learning will be able to occur in all domains. Through the lens of self-regulation educators can provide tools that can significantly alter a child's educational or life trajectories (Blair & Diamond, 2008; Blair

& Razza, 2007; Duckworth & Seligman, 2005; McClelland & Cameron, 2011; Shanker, 2013).

Kopp (1982) focused her research on how self-regulation develops from early infancy to the preschool years. She based much of her findings on Piaget's Stage Theory, although there is also support through the work of Vygotsky and the Social Development Theory as children do not always fit into a perfect box and grow and change at various rates based on many internal and external factors.

Birth - 3 Months

In the first three months, caregivers externally regulate infants. Caregivers soothe infants by holding, rocking, and demonstrating a calming demeanor. Through these behaviours the caregiver is able to support the infant in maintaining or gaining optimal regulation. At this stage infants are unable to regulate their emotions or behaviour in order to be calm and alert.

3 – 12 Months

By three months of age, infants begin to respond to events within their environment. They begin to be able to attend to external stimuli as a distractor that helps them to regulate their emotion and behaviour. Caregivers rely on books, toys, soothers, and themselves as ways to calm their infant. When caregivers are using an external stimulus to distract infants in order to assist them with regulating emotion or behaviour the caregiver will notice that, if the toy or other desirable item is removed, the infant's behaviour will quickly return to a stress response where they may cry, yell, or become uncomfortable.

12 – 18 Months

With the growth of language, toddlers begin to demonstrate the ability to initiate, maintain, and stop behaviour at the request of a caregiver. This is the earliest stage of impulse control.

18 – 24 Months

At end of the second year, toddlers are able to demonstrate the beginnings of control. At this time, toddlers can stop themselves from performing tasks that have been repetitively demonstrated by the caregiver as undesirable. For example, a child will shake his/her head, say no and refrain from touching an object, then look for their caregiver's approval.

24 – 36 Months

At two to three years of age, toddlers are able to recall caregiver expectations and knowledge of social cues. They begin to apply the rules without caregiver presence. Through this toddlers are demonstrating the ability to monitor their behaviour internally. Although this is the beginning of self-control, toddlers still often require motivation by pleasure to enhance their ability to follow directions in a positive, timely manner. An example of this is when a caregiver states, "Please clean up your toys; then we will have a snack."

36 Months and Beyond

Preschool-aged children begin to use language as a directive function both internally and externally. They are able to wait and do not require instant gratification.

They are able to inhibit prohibited behaviour. Preschoolers are readily able to adjust to situational demands.

Summary

From birth to early preschool age, children go from needing full support from a caregiver to being able to regulate emotion and behaviour by using internal and external stimuli. This continues to grow and change well into the adult years. With the development of a person's executive function comes improved regulation ability. Although some children struggle with developing the ability to regulate their emotions and behaviour, it is important to note that we can look at a student's symptoms to help determine where they are at developmentally with self-regulation and program accordingly. For example, if a child is able to follow an undesirable request with the promise of something desirable immediately following the request, an educator can plan a child's day based on this information. It is important to look at child's development as something to be improved upon and set reasonable goals to ensure success. Look at a child's strengths and follow their path.

What Impact Does Self-regulation Have on Learning?

Picture this…. there is a student in your class who sits in their desk, raises their hand, sets goals, and follows expected routines. They may not do this all of the time but are able to manage this type of behaviour for most of their school day. There is also another student in your class who rarely sits in their desk, blurts, seldom completes assignments, goes to the bathroom frequently, and at times can be physically aggressive. These two students couldn't be more different in their classroom behaviours. The first

student described has many of the skills necessary to be successful in Canadian schools. The second student not only will impact their own learning over time but also the learning of others. In classrooms today there are students of all types and needs. A teacher's ability to differentiate not only the curriculum but their environment, routines, and expectations creates a delicate balancing act when attempting to educate upwards of 30 students in a classroom.

A host of researchers have examined the effect poor self-regulatory skills have on academic performance. These researchers discovered that self-regulation is incredibly impactful on a child's immediate learning and also has an impact longitudinally on their social and academic success (Blair & Diamond, 2008; Duckworth & Seligman, 2005; Diamond & Lee, 2011).

There are a multitude of skills a child needs in order to be ready for school. Many of these skills fit under the umbrella of self-regulation. Some of the skills include the ability to shift attention from one task to another, persist at a task until it is complete, follow basic instructions, demonstrate interest and excitement in learning new things, and move between activities. When children do not come to school with these skills they are already considered "behind" in their learning. It is difficult for children to learn academic information such as skills that are working towards reading, writing, and math proficiency if they cannot shift attention or focus on a task for any length of time. Children will then become easily frustrated and feel as though they cannot learn. A child's performance in school and the relationships they are able to build with peers and educators can be largely impacted by their ability to self-regulate. If educators have a

good understanding of self-regulation, they can better support their students and will see growth both in a child's ability to self-regulate and learn academic information.

Common Terms Associated With Self-regulation

There are many words that are associated to self-regulation that need to be defined in order to understand the concept entirely. Below is a table of the important terms that will help support educators in understanding self-regulation.

Term	Definition
Attentional Regulation	One's ability to shift and maintain attention on necessary tasks
Attentional Shifting	Moving one's attention to the most important concern
Behavioural Regulation	One's ability to control and maintain one's behaviour
Cognitive Control	The ability to adapt to information moment to moment, allows people to be flexible
Cognitive Regulation	Controlling one's thoughts/thinking processes
Early Intervention	Education of students up to Grade Three
Early Learning	Programs that support student learning up to Grade Three
Effortful Control	The ability to regulate responses of external stimuli
Emotional Regulation	Maintaining control of one's emotional state including feelings and thoughts
Engagement	The level in which someone is involved in their learning

Executive Function (EF)	Includes shifting and maintaining attention, inhibiting impulses, working memory, cognitive flexibility as well as the ability to plan, problem-solve, and reason
Inclusion and Intervention Plan (IIP)	A plan that is created to support the educational goals of an individual student, also referred to as an individual education plan (IEP)
Inhibitory Control	The ability to stop attentional or behavioural responses
Metacognition	Understanding one's own thought process
Mindfulness	Being present and in the moment
Motivation	The level to which someone is willing to do a particular task
Occupational Therapy (OT)	Supports clients physically and mentally in rehabilitating areas in which they need support to complete activities that are required everyday
Planning	One's ability to make plans
Problem Solving	The ability to consciously make decisions that are pertinent to the situation
Readiness	The skills a child needs to be ready to learn
Social-Emotional Competence	Supports the development of positive relationships with prosocial behaviour
Social-Emotional Learning (SEL)	The way people are able to learn about their emotions in order to effectively manage them
Self-Regulated Learning (SRL)	Learning that is guided by metacognition
Sensory Integration (SI)	The ability to use the information provided to us externally through our senses
Sensory Processing	Similar to SI as it turns messages from the nervous system into appropriate motor and behavioural responses
Temperament	A person's disposition
Tiers of Intervention	The levels of interventions that are needed for a student dependent on individual student need
Working Memory	The area of the brain that is concerned with the immediate processing

Strategies that Support the Development of Self-regulation

Understanding self-regulation is an important beginning to supporting children in schools today. Knowing what to listen and watch for symptomatically helps support educators in being able to identify struggling learners who may be having difficulty self-regulating. After developing an understanding of what to look for in someone who may be struggling symptomatically with self-regulation, we need to develop a plan to support the student. This involves either strategies that can be used for individuals or programs that can be used to benefit whole classes of students. Durlak et al. (2011) completed a meta-analysis of school-based interventions that support social emotional learning. They developed an acronym that can help educators be more critical of the abundance of material and strategies that can be used to support students struggling with self-regulation. The term SAFE was adopted and stands for sequenced, active, focused, and explicit. When educators are determining good tools these four words can be kept in mind what is important when using a program or strategy to support their struggling students.

In today's world we can simply type into a search engine a question and an answer will quickly come our way. This is both positive and negative. As educators, we need to critically examine what strategies or programs we are using for students to ensure best practice. We need to use strategies or programs that are evidence-based to ensure that best practices are adhered to. This is our professional responsibility! Fortunately the topic of self-regulation has exploded in the literature and research. Unfortunately, much of what we are learning about in the area of self-regulation is still new, within the last

five to ten years, and more research needs to be completed to continue to support best practice.

The strategies and programs that are discussed in this handbook have been researched and considered to be evidence-based practices that support the development of self-regulation. Educators should consider their individual students to choose what options are best to support their development. A consideration also needs to be made that teachers feel comfortable and confident in delivering the programs and supporting the intervention strategies. Educators can access area consultants, occupational therapists, administrators, and other colleagues for support with self-regulation.

Metacognition

Metacognition is the ability to understand our own thought processes. Essentially, thinking about our own thinking. It is the way we can understand how we learn and what we need to be successful. As we gain an understanding of how we learn as individuals, students can begin to advocate for themselves through educators and families. As educators we need to instruct our students on how to look deep within themselves. Students need support to learn how to self-monitor, self-assess, plan and organize, and self-consequence. Each of these processes require explicit instruction and opportunity to practice in multiple situations over an extended time frame. This instruction needs to begin to occur in kindergarten and extend into high school.

Self-monitoring is the ability to recognize your own behaviour in order to modify it to meet social demands. Students need to be made aware of their behaviour and reflect on what they have done in successful or unsuccessful situations. For example, if a

student has called another person a name, they need to be able to identify that they have wronged the other person and then choose to correct the behaviour in another similar situation. Through self-monitoring students can identify what they need in order to support the change in behaviour or continue a positive behaviour. The ability to self-monitor helps prevent maladaptive behaviour because students are able to recognize the need to stop the undesirable behaviour. They complete this by utilizing the strategies that are effective for them.

Self-assessing or reflection is the ability to look at what you have done whether it be a school assignment or a positive or negative behaviour and identify your strengths and areas of need. Students need to be able to look critically at themselves and identify what they need to do to move forward. This can occur in both positive and negative situations. The ability to self-assess or reflect supports a growth mindset. We can learn from everything we do. By being able to identify our strengths and areas of need students can improve their overall achievement socially, emotionally, physically, and academically.

Planning and organizing often work together. Planning is the ability to look ahead and know what will happen next, while organization is the way in which we would like the plan to occur. Students need to not only understand the plan educators are working towards but also be involved in creating the plan. Students need to see themselves in the work that they do. By having student voice present, they will feel heard and it will support their achievement. As well, by including students in planning and organizing we are able to model the process so that students can begin to understand

how planning and organization can impact their ability to regulate themselves. We know that in life plans can change easily, but a student who is well prepared for change can be impacted far less negatively. Educators can utilize various graphic organizers that can support the planning process visually.

Self-consequencing often has a negative connotation. The word consequence can be defined both positively and negatively. Students can provide themselves with internal or external consequences. It can simply be identifying when you have done good work by saying to yourself "great job" to prevent yourself from participating in an activity until you have completed what is expected. Once students are taught to identify their strengths and needs in all that they do, they can then begin to consequence themselves. Students can often take this too far or be harder on themselves than any adult would be. As educators, it is our responsibility to model appropriate consequences for various expectations for our students.

Goal-setting

Goal-setting is one of the most discussed strategies that support self-regulation. Students need to be able to see ahead. Self-regulation difficulties are often associated with medical disorders such as ADHD or autism. Symptomatically, students that are diagnosed with these medical conditions often display a deficit in the ability to look ahead or take another person's perspective into account. Through goal-setting you can create a more natural opportunity to explicitly instruct students on how to look beyond themselves in the moment. Goal-setting encourages students to be active participants in their learning. Through goal-setting students are given an opportunity to work towards

something they can be proud of. It is effective to create both long- and short-term goals that students can reach with moderate challenge. Initially educators can model a short-term goal by verbally and visually completing the process during each block of work time. An example of this would be to create a list of tasks you expect to be accomplished during the instructional block and provide exemplars to demonstrate how you want the work to be completed. As students grow to understand the process of goal-setting educators can actively engage students in creating their own expectations for tasks. This can also be transferred to behavioural expectations. Creating learning and performance goals can support student engagement and students' ability to self-regulate. When students are unaware of the importance each task plays in their learning and cannot see a means to an end they often struggle to understand why they should remain an engaged regulated learner.

Inquiry/Project-based Learning

Students who have an opportunity to guide their learning through an inquiry-based approach can see themselves as in charge of their learning. They can choose to take a variety of paths that are guided by educators. Educators can set out the expected outcomes that need to be achieved and students can choose their own personal direction. Inquiry-based learning can be defined as a way of introducing information through questioning and problems rather than through the production of facts. Educators will often be referred to as facilitators during an inquiry project. They take on a support role rather than a teaching role. The inquiry process supports students who struggle with self-regulation by encouraging them to take the lead in their education. Although this can be

a struggle, educators need to be reminded of the necessity to scaffold information that is needed by their students. Although students may know what they would like to study, the ability to effectively organize themselves may not come as easily. Educators can provide tools such as graphic organizers to support each individual on the needs that they are displaying or advocating for.

Explicit Teaching

As educators we know that students come to us with a variety skills and abilities. They all have strengths and areas of need. Considering that self-regulation is a developmental process, educators need to consider teaching to the strengths and needs that directly impact a student's ability to self-regulate. Educators can assess where a student is at with their ability to self-regulate and begin to instruct the individual student in their areas of need. For example, if a student is demonstrating that they are beginning to follow adult expectations without an adult being present all of the time but value a reminder with a reward, they may be demonstrating that their skills are developmentally at a 24-36-month level and as educators we need to support the development from where students are demonstrating their skills. Educators can explicitly teach self-regulation skills through a variety of programs that will be discussed in a later section of this handbook, such as modeling, using peers, and visuals. The key is to not assume a student should or does know how to regulate him or herself. Just like reading, self-regulation requires explicit instruction for some students.

Self-assessment

Students can often be the hardest on themselves when given expected criteria. Students can be very honest with themselves when they have been explicitly instructed on behavioural or academic expectations. Self-assessment tools can be comprehensive or simply have one focus in mind. For example a target can be used to indicate to an educator how the student feels they are doing in one specific area. If the student feels they have met the expectation they can color the center of the target, if they are in reach of the goal they may color a ring just outside the center, or if they are way off base they may color the outer ring. If you have students that can assess themselves in multiple areas, you may choose to use a rubric with descriptors or a simplified version that lists one descriptor with a visual set of happy, almost happy, or sad faces attached to it. It would be appropriate for educators to pull curricular outcomes and report card behavioural expectations out and have students assess themselves based on specific classroom tasks. By having students self-assess they are able to have a voice in how they feel they are doing. By providing specific expectations for them to focus on students who would over- or under-inflate their marks learn how to see their performance realistically.

Creating Calm Spaces

Educators directly impact the classroom environment through a variety of ways. The physical and auditory environment can support students with maintaining optimal regulation levels. Educators can set their classrooms up in a way that makes the classroom feel like a home and less institutional. With the fluorescent lights, desks, and many bodies in a regular Canadian classroom, students can often feel out of place, over-

stimulated, and frustrated. Environments that promote collaboration by providing various seating options, natural light, and minimal visual stimuli can support a calm space for students. Not only does the physical space support self-regulation but so does the sound of the environment. Classes can get noisy, especially during transitions. Educators can support the auditory environment as much as the physical environment by using a variety of tools such as chimes to indicate a change in activity, soothing music throughout work times, and keeping a calm low-level voice during instruction or transitions. The louder we get, the louder they get!

Movement Breaks

Movement breaks or body breaks are a way to plan times during the school day for students to increase their attention by becoming active in a purposeful way. The break may be designed to wake a student up or slow a student down. It is essential that it contain both vestibular and proprioceptive input. Vestibular input includes any type of movement but spinning, swinging, or hanging upside provide additional intensity and longer-lasting effects. Proprioceptive input is providing pressure to joints and muscles. Examples of activities that support proprioceptive input include heavy lifting, pushing, and pulling objects or a child's own weight. The adults that work with the students will learn to gauge the needs of individuals with support from an occupational therapist.

Co-regulation

Co-regulation is when two people are able to work together to keep themselves at optimal levels of regulation. One person is often the leader and supports the regulation of the other person. The individuals will attempt to copy or mimic the other's regulation

level. This can be a difficult task for students that struggle with reading social cues. Occupational therapists can support educators and their students in understanding what to watch for, including but not limited to tone of voice and volume, intensity of movement, pace of the lesson, and any other sensorimotor strategy that promotes co-regulation. Co-regulation can occur through an explicit situation where an adult and child work together to reach optimal levels of regulation or within the classroom as a way an educator chooses to establish their environments.

Class- or School-wide Interventions

There are several class- or school-wide interventions that support self-regulation that have gained attention over the last number of years through research. Although a relatively new field of study, one intervention made initial headway in the field just over 20 years ago. This intervention has been adapted by its creators over time but remains constant in its message and original purpose. Mary Sue Williams and Sherry Shellenberger created the *Alert Program* circa 1996. It is one of the oldest and most studied tools to support self-regulation. This program is supported heavily by research and is a way to explicitly teach how the brain can be used to control the body through our senses. The two authors use sensory integration as a means to have students and adults identify the gaps they are having in their ability to regulate. They use the analogy of how a car runs and allow students to imagine what a car looks like, sounds like, feels like when the engine is running too fast, too slow, or just right. Another of the major focuses of the program is to use the five different ways to change one's state of arousal. The five ways are mouth, move, touch, look, and listen. The mouth focuses on breathing, rhymes,

singing; move works through the movement piece, which can include heavy lifting and various exercises. Through touch, students work with a variety of physical tools, such as fidgets and play-doh. Look focuses on the design of the room, including lighting, seating, and organization. Listen refers to reducing noise during transition through the use of chimes or calming music during work periods. Each of these sensory areas is addressed in the *Alert Program* as a way to meet the needs of individuals through a variety of sensory integration strategies.

More recently the intervention titled *Zones of Regulation* has gained popularity as a promising intervention in its ability to provide educators with ready-made tools to teach emotion, perspective, and calming strategies that lead students to being able to learn when and how to use the strategies in everyday life. Author Leah Kuypers, with the support of Michelle Garcia Winner (2011), created a toolbox for educators to teach their students self-regulation skills. The curriculum is a set of 18 lessons that work through the concepts with visual and hands-on activities. The first nine lessons support students in understanding what "zone" they fit in. Once students are able to identify the zone, educators can move towards teaching the strategies that can be used by students to get them into an optimal learning zone. Strategies are grouped into three areas: sensory tools, calming tools, and thinking strategies. In the remainder of the lessons, students are introduced to when they are to use the tools and educators are reminded that if a student begins to transfer the skills learned in lessons into the daily classroom it is important to reinforce students who are beginning to think about self-regulating independently.

Mindfulness-based education programs have been receiving good feedback in the research world for children. The *MindUp* curriculum specifically has been tested through two studies and demonstrates as promising for elementary students. It was developed to support students in their understanding of how the brain works and teach them to live in the present moment instead of worrying or focusing on events or concerns that are beyond their control in that moment. It teaches students the power of breathing, perspective-taking, optimism, gratitude, and kindness. The *MindUp* program expects educators to live the philosophy to better help their students achieve the ability to leave behind their concerns for the moment in order to complete expected tasks proficiently. There are 15 lessons that can be taught and re-taught as needed with the option to use many supplementary resources. The resource is broken into three grade-level groupings, which include Pre-kindergarten to Grade Two, Grades Three to Five, and Six to Eight.

Stop, Think, Act: Integrating Self-Regulation into the Early Childhood Classroom was created by a Megan McClelland and Shauna Tominey (2016) who have completed a significant amount of research in the area of self-regulation. They have created a resource for early childhood educators to use that supports the research they have compiled over the last 15 years. In this book the authors compile various hands-on and game activities that support the development of self-regulation in the early years. They have also created a list of specific activities that support literacy and mathematics. By focusing on supporting the child from birth, the authors identify the developmental stages of self-regulation and how parents can support their children. There is an extensive list of resources that were used to create the book but also additional resources are listed that

would support educators through their journey in developing their students' ability to self-regulate.

The *PATHS* program or *Promoting Alternative Thinking Strategies* focuses on instructing students on emotional and social competence, works to prevent behavioural concerns, and supports the classroom environment for all students. The target of the program is to promote pro-social behaviour, improve student's ability to communicate effectively with adults and peers, develop an understanding of classroom rules and responsibilities, increase self-control, develop an understanding of feelings and how they affect us by ensuring that we can see other's points of view, and ultimately improving academic success. The *PATHS* program utilizes many of the modern-day learning constructs or models to guide the program. There are well laid-out lessons that span Pre-kindergarten to Grade Six dependent on student needs. All materials are included in the kit, including a CD for resources. The PATHS curriculum's key message is prevention. The creators hope to support the growth of young people through explicitly instructing social emotional learning skills such as self-awareness, self-management, social awareness, relationship skills, and decision-making in the hope of supporting students in their path to success. Although self-regulation is not explicitly discussed, the program focuses on social emotional learning which supports the development of self-regulation. The curriculum wants to teach students how to understand themselves better so that they can control their behaviour and emotions as needed.

In 2013, Stuart Shanker created a resource for educators that supports the understanding of self-regulation and provides strategies that can be used dependent on a

student's areas of concern. Shanker explores five domains in which students can struggle with self-regulation and offers suggestions for individuals and classes. He suggests that a student's behaviour will be reflected in the domain that they are struggling with. The five domains are biological, emotional, cognitive, social, and prosocial. Students can struggle in more than one domain and require intervention to support growth. Shanker presents ample suggestions for strategies and interventions that have been proven to support the growth and development of a student's self-regulation. He focuses on supporting the student through the symptoms that they exhibit and relates it back to self-regulation being a developmental process.

Summary of Strategies that Support the Development of Self-regulation

Although there are a number of ways to support students in their development of self-regulation educators need to be cautious and choose strategically based on the needs of their individual students. We live in a time where we can Google search or pin ideas on Pinterest. Although the ideas may be interesting, they may not be a valid method to support students. Consideration need to be given as to whether class-wide interventions are the best use of student time or whether individuals can benefit enough from specific individual interventions. Many of the class-wide interventions support self-regulation but can also provide a classroom teacher with a structure that supports behavioural expectations for all students. The programs are clear, resource-based, and offer concrete visuals that can enhance all students' ability to learn about themselves and understand their own needs. Any of the programs that are summarized in this handbook are supported by research, therefore choosing the appropriate program will come down to

knowing your students and their needs, understanding your needs as an educator with what you may feel comfortable delivering, cost, and the support you have in your school from other staff and administration. Strategies need to be tailored to individual students with the support of special education teachers and occupational therapists, however, the programs that educators deliver to their entire class to support self-regulation need to work for the individual educator and their school community. The research indicates that school-wide programming that is implemented over multiple years may be more influential for students and result in greater success due to common language and consistency.

Resources to Support Educators

On the next six pages educators can access brochure resources as quick-reference educational tools when supporting parents and themselves.

Importance of Self-Regulation for Early Childhood Educators

New research in education has examined the importance of student success based on their ability to demonstrate Self-regulation skills. Duckworth and Seligman (2005) expressed that students ability to self-regulate can be a better predictor of school success than IQ. Rimm-Kaufman, Pianta, and Cox (2000) determined that half of the children entering Kindergarten programs were not ready for school based on the student's demonstration of dysregulated behaviour.

Understanding the development of self-regulation is key in assisting early childhood educators in choosing programming options to help improve a child's ability to plan, attend, monitor, and persevere to attain personally relevant goals in the academic, behavioural, emotional, and cognitive domains. By promoting positive self-regulation students will feel calm and alert. Their stress levels will be reduced, and learning will be able to occur in domains. Through the lens of self-regulation educators can provide tools that can significantly alter a child's educational or life trajectories (Shanker, 2013).

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Development of Self-Regulation Birth to Age 4

Classroom Strategies to Support Self-Regulation

- Play-based exploration
- Clear routines
- Provide visual support
- Games- i.e. Simon Says
- Establish a connection with the preschoolers caregiver
- Use literature

(Shanker, 2013)

Written by:
Danielle Tooley

A Brochure for Early Childhood Educators and Families

What is self-regulation?

Self-regulation is defined as "the ability to flexibly activate, monitor, inhibit, persevere and/or adapt one's behaviour, attention, emotions, and cognitive strategies in response to direction from internal cues, environmental stimuli, and feedback from others, in attempt to attain personally relevant goals" (Moilanen, 2007, p.835).

Development of Self-Regulation

Birth → Preschool

External Control → Internal Control

Birth – 3 Months

Caregivers externally regulate infants. Caregivers soothe infants by holding, rocking, and demonstrating a calming demeanor.

3 – 12 Months

Infants begin to respond to events within their environment. They begin to be able to attend to external stimuli as a distractor that helps them to regulate their emotion and behaviour. Caregivers rely on books, toys, and soothers as ways to calm their infant. When caregivers are using an external stimuli to distract their infants in order to assist them with regulating emotion or behaviour the caregiver will notice that if the toy etc. is removed the infants behaviour will return to distress.

12 – 18 months

With the growth of language toddlers begin to demonstrate the ability to begin, maintain, and stop behaviour with the request of a caregiver. This is the earliest stage of impulse control.

18 – 24 months

By the end of the second year toddlers are able to demonstrate the beginnings of control. At this level toddlers can stop themselves from performing tasks that have been repetitively demonstrated by the caregiver as undesirable. For example, a child will shake his/her head, say no and refrain from touching an object usually then looking for their caregiver's approval.

24 – 36 Months

Toddlers are able to recall caregiver expectations and knowledge of social cues. They begin to apply the rules without caregiver presence. Through this toddlers are demonstrating the ability to monitor their behaviour internally. Although this is the beginning of self-control toddlers still often require motivation by pleasure to enhance their ability to follow directions in a positive, timely manor. An example of this is when a caregiver states "please cleanup your toys then we will have a snack."

36 Months and Beyond

Preschool aged children begin to use language as a directive function both internally and externally. They are able to wait and do not require instant gratification. They are able to inhibit prohibited behaviour. Preschoolers are readily able to adjust situational demands.

*Images courtesy of Google Images

What is Self-regulation?

Self-regulation is defined as "the ability to flexibly activate, monitor, inhibit, persevere and/or adapt one's behavior, attention, emotions, and cognitive strategies in response to direction from internal cues, environmental stimuli, and feedback from others, in attempt to attain personally relevant goals" (Moilanen, 2007, p.835).

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A Guide to Self-regulation

For Educators

"When you rule your mind, you rule your world." Shanklin, 1929, p.22

Strategies that Support Self-regulation

- Class wide instruction that focuses on self-regulation, examples of this are: *The Alert Program, Zones of Regulation, Calm, Alert and Learning, MindUp*
- Consider using body or movement breaks in your daily routines
- Contact your special education or behaviour consultant for suggestions
- Contact the occupational therapist for support in developing specific programs for children or to support class wide initiatives

Resources:

Kuypers, L. M., & Winner, M. G. (2011). *The zones of regulation: a curriculum designed to foster self-regulation and emotional control.* San Jose, CA: Think Social Pub..

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Frequently Asked Questions

Why is Self-regulation so Important?

Researchers have uncovered that self-regulation can be a critical indicator of school success. The same researchers noted that a child's ability to maintain optimal regulation levels throughout the school day can is a better predictor of school and lifetime success than IQ (Blair & Diamond, 2008, Blair & Razza, 2007, Duckworth & Seligman, 2005, McClelland & Cameron, 2011, Shanker, 2013).

What impact does self-regulation have on learning?

A student's ability to follow directions, remain focused, raise their hand, plan, monitor, and set goals are all indicators of a student that demonstrates the ability to self-regulate. These skills support the student's ability to gain knowledge and understanding in the classroom. If these skills are not in tact children will often demonstrate lower achievement levels.

Can self-regulation skills be taught?

Due to it being a developmental process, self-regulation can be taught to children. Find out where the child is at and move them forward.

What is self-regulation?

"Self-regulation is the ability to manage your own energy states, emotions, behaviours, and attention, in ways that are socially acceptable and help to achieve positive goals, such as maintaining good relationships, learning, and maintaining wellbeing" (Shanker, 2013, p.).

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Written by Danielle Tooley

Self-regulation: A Guide for Families and Caregivers

What strategies support self-regulation in the home?

- Discuss changes in the home large or small
- Predictable routine
- Give children warning when activities are ending
- Playing a variety of games that enhance physical coordination such as skipping, hopscotch, or ball
- Play games that increase a child's ability to pay attention for example, musical chairs, red light, green light
- Model self-regulation , co-regulation
- Let children monitor their success
- Discuss feelings and emotions, role-play, how does your body respond when you are happy? Sad?
- Encourage physical activity
- Encourage a child to remain optimistic through difficult tasks, take pride, and ask for help when needed
- Use a child's strengths to promote growth
- Encourage your child to understand the feelings of others

(Shanker, 2013)

"When you rule your mind, you rule your world."
Shanklin, 1929, p.22

How can families support the development of self-regulation?

Caregivers can support the development of a child's self-regulation beginning at birth. Caregivers can encourage infants by moving them through the developmental stages of self-regulation. Initially infants require external regulation, which involves rocking, singing, touch, and soothers. Slowly infants become more independent and perform some of these tasks on their own. Next, the caregivers can help their baby by providing distractions such a desirable toy or a meal. This will help the baby to move from being in distress to optimal regulation.

At the beginning of the toddler phase, caregivers can begin to encourage impulse control. Toddlers can demonstrate signs of being able to wait a short while for desired items. Caregivers need to responsive but supportive in their wait times for children. We do not want to cause any undue stress. As children get older they continue to demonstrate an increase in their ability to use internal stimuli verses the external support from their caregivers.

By two to three years of age children can be supported to complete undesirable tasks with the promise of reward. The rewards do not have to be large but fit the request. For example, "once you put your toy away, we will read a story". Caregivers need to continue to be present and visible in order to support positive and safe choices.

By the time children are three to five they begin to be able to make safer choices independently, caregivers can be at a slight distance to help support children as necessary. As they increasingly get older children need less supervision because they have been guided through safe choices and positive decision making right from the beginning. Children grow and develop at different rates and need to be supported according to what they are showing they need (Kopp, 1982; Kochanska, Coy, & Murray, 2001; Posner & Rothbart, 2000; Reuda, Posner, & Rothbart, 2005).

Program Resources to Support the Development of Self-regulation for Educators

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Chapter 6: Conclusions

In this final chapter, the researcher will review the content of the project by reviewing the research and process that has taken place. The researcher will discuss her experiences, how the project has taken shape, recommendations, and reflect on how this project and the process of completing a Master of Education degree has changed her current practice as an educator.

Introduction

Dr. Ross Greene always talks about how kids will succeed if they can. This project was created to support educators in their journey to support students who are not demonstrating the skills necessary to be successful in school. It is our responsibility as educators to provide the necessary programming to students so that they can do well. It is clear from the research perspective that in order for students to be successful, focused attention on the instruction of self-regulation needs to be on the agenda (Blair & Diamond, 2008; Blair & Razza, 2007; Duckworth & Seligman, 2005; McClelland & Cameron, 2011; Shanker, 2013). All students are at varying levels in their development of self-regulation and therefore educators need to work on the same principles of differentiation as they do for an academic subject area. Educators need to spend time assessing where their students are at and then move them forward based on their assessment results. We are able to do the same for students who need support in self-regulation. After reviewing the research it seems that we are all at varying levels in our ability to self-regulate and therefore could benefit from instruction and support in order to continue to grow (Kopp, 1982). Through the interventions that have been researched, educators can support students in their ability to regulate. These skills range from being able to set goals to handling frustration and regulating emotions. All of us can benefit from this type of instruction.

In my experience, students who exhibit significant behavioural concerns often display lagging skills in their ability to focus attention, follow directions, set goals, maintain motivation, manage time, and understand cause and effect. These are key aspects of self-regulation and therefore require time, attention, and dedicated, focused instruction in order for students to be successful. I have seen these skills taught within the regular classroom environment, in a pull-out setting, and in specialized programs. The setting was often determined by the degree and intensity of symptoms students were exhibiting. I have often wondered if early learning educators who had an increased understanding of the developmental processes of self-regulation could support more children and prevent the need for some students to attend specialized programs. Although I believe this would impact some students in giving them new skills to work through emotion and frustration, there is a bigger picture that includes parents and other professionals for some students. Self-regulation support is one way to support students struggling with behavioural concerns and will certainly catch a great deal of students by working preventatively to ensure lagging skills are being addressed. Completing my research on self-regulation has increased not only my understanding in the topic area but has confirmed the need for this to be addressed in schools. The school division that I work with has placed such high importance on it that it is assessed on report cards in the area of learning skills. Unfortunately, when speaking with educators, many seem to be unsure of how to address it in the classroom or how to assess. It is my hope that this project will support the educators in their understanding of self-regulation and help to create classroom spaces for children that are calmer.

Research

This project has taken shape through two modes of research: qualitative content analysis and focus groups. The content analysis was supported by numerous searches of specific databases: ERIC, Psych Info, and Academic Premier. Through the databases, key words were used to identify articles that would be appropriate for this project. Once these databases were exhausted, Google Scholar was used to locate more resources that often included the full-text, PDF versions. Ample resources were located and used to support this project. Through the reading of articles four key themes were identified: the development of self-regulation, the impact of self-regulation on academic achievement, self-regulation and its relationship to self-regulated learning (SRL), and self-regulation and evidence-based interventions. Once initial themes were identified, focus groups to determine what educators needed on the topic were created. Data was collected from Pre-kindergarten to Grade Four educators as well as special educators and occupational therapists to determine specific topics that could be addressed in the handbook. The data from the focus groups supported the research direction focus for the qualitative content analysis. The researcher pulled articles and books to support what the teachers wished to learn about as well as uncovering topics that emerged from the content analysis as areas that were supported by research as important in the area of self-regulation.

Recommendations

Further recommendations for *An Educator's Guide to Self-Regulation* include an expanded information on individual interventions and an increase in the amount of detail regarding program interventions. As well, more information on how educators and parents can work together in supporting self-regulation for their students could be an appropriate topic to include.

Reflections

As I reflect on this project, I believe that it will be a resource that my colleagues could use to gain a quick understanding of the topic of self-regulation and to explore additional resources as there are many valuable sources that can be accessed and are included in this project. I believe that the commitment and time that I have put into this project is a testimony of how important I believe that this area of development is for students currently in our school systems. The work that I have completed has solidified my understanding of self-regulation and I believe that I can support my colleagues in this area so that they can better support their students. In my role as a resource teacher and vice principal, I am able to guide and support fellow educators on this path and it is my hope that we will create calm and alert students who are ready to learn and flourish. The purpose of this project was to give elementary educators the current research behind what self-regulation is and the support students require in developing their self-regulation skills, including the evidence-based programming/interventions for children who struggle with self-regulation. The fundamental goal of the guide was to provide elementary school educators with an easy-to-use handbook of information on what self-regulation is, the importance of addressing it in the classroom, and strategies and program interventions that could support the students in their classrooms with self-regulation needs and, ultimately, increase academic learning and performance for all students. I believe that the handbook that I have created has met its purpose and will support students that are struggling and all those seeking to improve the ability to regulate emotion and behaviour. At any age and skill level, there is still growth that can occur.

Final Thoughts

Over the last four years since I began the journey of completing a Master of Special Education degree, I have been able to focus my attention on learning about topics that I see

my students need to gain an increased understanding to better support their diverse learning needs. The Master of Education program has supported me in helping to build my confidence so that I can support my colleagues. Through this process I have recently become a successful applicant in attaining a vice-principalship for the school division in which I am employed. Through this opportunity, I can support my colleagues in a way that affects all of the students that attend the current school where I am employed. I am able to deliver professional development to staff and have confidence in my knowledge and ability. Understanding how to research effectively in order to provide colleagues with evidence-based information is a tool that will continue to support me throughout the rest of my teaching career. This will ensure that I am able to support students with the most current and effective interventions.

Completing a Master of Education gives me such pride. I have been able to share my journey with my family, friends, and colleagues. My children and spouse have seen the effort and dedication, as well as the struggles throughout the process and have supported me in a way that I could not imagine. When I committed to this process with my family, I wanted to ensure that it did not take away from my family and my work. Although the process of completion has taken me longer than I personally wanted, I believe that I was successful in maintaining a balance that I can be proud of. Overall, this process will guide my practice as an educator throughout the rest of my career by giving me the tools to understand what is out in the world of education beyond the four walls I go to everyday.

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